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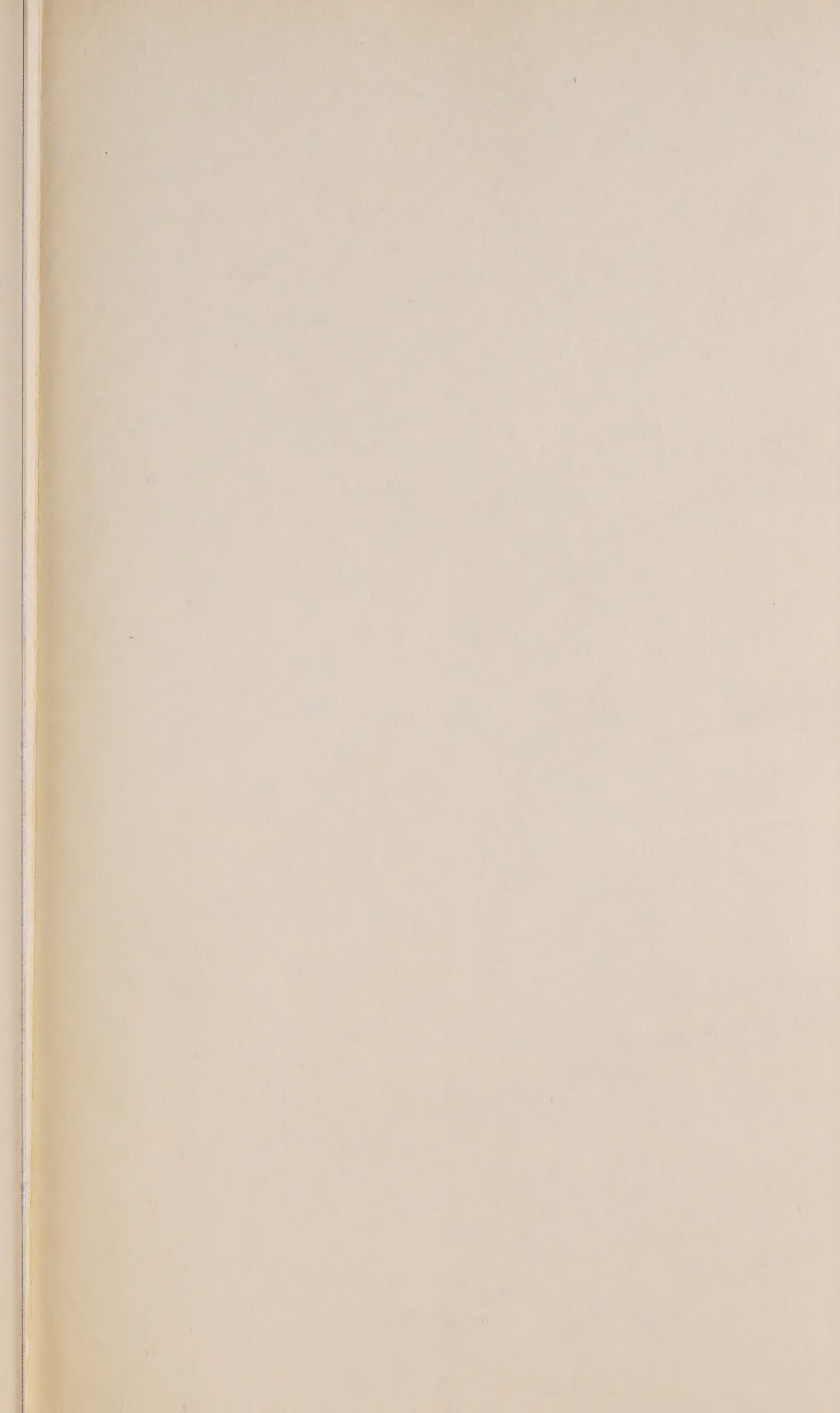



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ROYAL COMMISSION

ON

ENERGY

HEARINGS

HELD AT

MONTREAL

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ROYAL COMMISSION

on

ENERGY

Proceedings of hearings
held at Montreal, P. Q.,
commencing Monday, July 14,
1958

PRESENT:

MR. H. BORDEN, C.M.G., Q.C.	- Chairman
MR. J. L. LEVESQUE	- Member
DR. R. D. HOWLAND	- Member
DR. R. M. HARDY	- Member
MR. L. J. LADNER	- Member
MR. G. E. BRITNELL	- Member

COMMISSION COUNSEL:

Mr. A. S. Pattillo, Q.C.

Mr. M. H. Patterson

Mr. J. F. Parkinson - Secretary

Major N. L. Lafrance - Asst. Secretary



3:12
/18

Montreal, Quebec,
July 18, 1958.

---On resuming at 9.30 a.m.

Submission of
UNITED ELECTRICAL, RADIO and MACHINE
WORKERS OF AMERICA (UE)
(Canadian Section)

Appearances:

Mr. C. S. Jackson	- President
Mr. Jean Pare	- Vice-President
Mr. Michael Bosnick	- Business Agent, representing employees of Page Hersey and Welland Tubes
Mr. Ronald Billow	- Chief Steward of Union at Welland Tubes
Mr. James McDonald	- Chairman of Union at Welland Tubes
Mr. J. McIntyre, Sr.	- Chairman of Union at Page Hersey Tubes
Mr. Archie Morden	- Chief Steward of Union at Page Hersey Tubes
Mr. E. G. Adams	- Consulting Economist

THE CHAIRMAN: The Commission will now
resume its hearings. Mr. Pattillo?

MR. PATTILLO: Thank you, Mr. Chairman.

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This morning we are going to hear a submission from the United Electrical, Radio and Machine Workers of America, which I am proposing to be marked as M-18-1.

---EXHIBIT NO. M-18-1: Submission of United Electrical, Radio and Machine Workers of America.

MR. PATTILLO: Mr. Jackson is here with a group, and I understand that in addition to representatives of the group that are submitting this brief there are some persons here who are from the Welland Tubes Company, who would like to say a few words for a few moments at the conclusion of this brief. I have advised Mr. Jackson that that would be satisfactory.

MR. JACKSON: Gentlemen, we appreciate this opportunity to place before you the views of the members of the United Electrical, Radio and Machine Workers of America (UE), Canadian Section, on the important subject of Canada's energy resources. We lay no claim to expert knowledge of the petroleum, natural gas and pipelines industries; but we do hold strong views on the proper use and conservation of the nation's energy resources. Our objective in this brief is to impress upon the Commission the necessity, in our opinion:



- (a) of taking a "long view" of energy resource development, use and conservation in formulating national policies;
- (b) of recognizing the extreme importance of national energy policy on the welfare of the Canadian people;
- (c) of seizing the opportunity to implement aspects of energy policy now which will assist in fighting back economic depression.

In conformity with the Commission's announcement of the subject matter of the present hearings, we have limited this submission to "petroleum, natural gas and pipelines". We should like, however, to make further representations on energy policy regarding other energy sources when the Commission holds such hearings.

U. E. Interest in National Development:

The United Electrical, Radio and Machine Workers of America (UE), Canadian Section, is a trade union which speaks for twenty-five thousand members in the important electrical, electronics, machine hardware and pipe manufacturing industries of Canada.

Our most immediate concern is for the welfare of our members, for the condition of the industries in which they earn their livelihood, and for the contribution of the workers in these industries to the well-being of the Canadian people



generally. As part of the Canadian labour movement and as Canadians, we are inevitably deeply concerned about every aspect of national policy. Therefore, we consider it our responsibility to lay before the Royal Commission on Energy the views of our members on this important aspect of national policy, which directly affects the industries in which we work and the state of the Canadian people generally.

During our twenty-one years of existence as a Union, we have actively discussed problems of the industries in which we work and of the national economy as a whole, and we have consistently brought the views of our members forward for consideration of Canadian governments, governmental bodies and the public at large. In making this submission, therefore, we draw on our previous experience in analysing problems of Canada's development and on our firm belief that our country has the requisite resources, skills and intelligence to become a highly industrialized nation of first rank, fully independent economically and politically, and providing a high standard of living in all its aspects for the Canadian people. We believe, also, that Canada is able and has the responsibility to contribute, through the promotion of trade and positive, independent policies in world affairs, to peace, mutual understanding and rising living standards



throughout the world.

We have always held, furthermore, that these great prospects will not be realized automatically, by chance, or by wishful thinking. Sober analysis of the difficulties as well as full realization of the opportunities are needed to provide the basis for developing the national policies which will translate the great potentialities of our country into realities. The subject under investigation by this Royal Commission, in our opinion, is one of the important elements of such national policies.

Development of Oil and Gas Resources:

This year, 1958, is the hundredth anniversary of the first successful oil well on the North American continent -- that in Lambton County, Ontario. During most of the ensuing century since its discovery, petroleum production has not been a very important activity in Canada. But during the past decade all this has been changed radically. Ten years ago, domestic sources supplied less than 10 per cent of the nation's oil requirements. Now, Canadian wells are capable of meeting the nation's overall needs. (Royal Commission on Canada's Economic Prospects, "Canadian Energy Prospects" by John Davis, 1957, page 99). Yet we still continue to import a considerable part of our oil requirements at a substantial annual cost in



U. S. dollars.

With this phenomenal expansion of the industry has grown up a whole series of embarrassingly large policy questions.

The first problem is conservation, and here a long view must be taken. Although it is true that new reserves are continually being found in the world, it is also true that consumption of fossil fuels has increased enormously in recent years. Earlier estimates of life expectancy of fuel reserves on a world scale have been revised drastically downward. In the proceedings of the International Conference on the Peaceful Uses of Atomic Energy held in Geneva in August, 1955, E. A. G. Robinson and G. H. Daniel from Britain reached the conclusion --

"... even if we make conservation estimates of economic growth and of the future increases of demand for energy, the world is not far distant, measured in the units of time in which we think of the history of nations and even of the lives of individuals, from the moment when, in the absence of a new source, scarcity of fuel will begin to create serious problems." (Paper entitled "The World's Need for a New Source of Energy, Vol. 1 of Proceedings, page 47.)



P. C. Putnam, in his book "Energy of the Future" (1953) calculates the depletion of the world's recoverable fossil fuel reserves between A.D. 2000 and 2025, unless other plentiful energy sources were tapped in the meantime. Ayers and Scarlott, two other Americans, estimate larger fuel reserves and lower world demand, and therefore give a longer life span to the world's supplies -- between A.D. 2050 and 2190. ("Energy Sources, the Wealth of the World," 1952).

Hans Thirring, Professor of Physics at the University of Vienna, summarizes available data on this question and concludes --

"Man's reliance on fossil fuels for his supply of energy can but be a short episode in his history . . . If we want to preserve our civilization under the pressure of the fast-growing world population we must find ways of tapping other energy sources than the quickly vanishing fossil fuels."

("Power Production", 1956, page 218).

Canada may be richly endowed with fossil fuel reserves -- yet we must not continue to squander these precious resources as happened with other elements of our natural wealth. Crude petroleum and natural gas are very rich, complex mixtures of hydrocarbons whose varied applications modern technology is only beginning to tap.



"Within the last 25 years hydrocarbons from petroleum and natural gas have become a source of raw materials for more than 2,500 different chemical products" ("Resources for Freedom", Materials Policy Commission, Washington, Vol. IV, page 193). The "Paley Report" made some estimates of the probable use of petroleum and natural gas in the United States in 1975 as industrial raw materials -- for the production of synthetics and other products. If we take 10 per cent of these estimates as a rough approximation of what might be used then (1975) in Canada -- assuming no new product developments -- and express these quantities of petroleum and gas as percentages of our 1957 production, we get:

something equivalent to 7 - 8 per cent of our crude petroleum production in 1957

and about 30 per cent of our 1957 natural gas production, might be used then as industrial raw materials.

This is just an illustration, for in a fast developing branch of technology like petrochemicals, who can say what products will be possible and what the demand for materials may be twenty years hence? We must make sure that, as new uses are developed, we have the necessary supplies of these valuable raw materials to support



them.

Yet now about half the total energy consumed in Canada comes from burning petroleum and gas. Davis shows that over 60 per cent of oil now used is wasted. Ayers and Scarlott estimate that the overall efficiency of petroleum used as automobile fuel is about 5 per cent -- i.e., of every 100 gallons of oil in the ground the energy equivalent of only five is actually turned into useful work on the highways. The waste of a limited resource through the burning of forest stands to produce potash by our forefathers was infinitesimal compared to the modern capacity to destroy oil by combustion. In the United States, although proven oil reserves have so far tended to rise along with expansion in demand, the estimates of available years' supply have been steadily going down, as evidenced by the tremendous drive to acquire foreign oil sources in recent years.

U. S. Estimates of Number of
Years' Oil Supply in Proven
Reserves

1920	16.3
1930	15.1
1940	14.1
1950	13.0
1955	14.2
1965 est.	11.7

(Source: U.S. Bureau of Mines.
See chart and table in John
Davis, "Canadian Energy
Prospects" page 104)

Although Canada's crude oil reserves were placed at 3 billion barrels as of mid-1956 in "World Oil", and John Davis puts the possible reserve potential at 40 billion barrels (Canadian Energy Prospects", page 113) while 1957 consumption was about one-quarter billion barrels, it is already time to work out a long term conservation policy for this valuable resource. Canada must not find herself in the position of the United State when our technology has developed much more valuable applications for our petroleum resources than the present very wasteful burning of them under boilers or in internal combustion engines.

Outlines of a rational oil development and conservation policy are not difficult to define for Canada. We should develop our oil resources to the extent necessary to meet all our own requirements for petroleum products. (Apparently this point has already about been reached, but not applied.) Alien control over



such an important natural resource should be kept to a minimum. Otherwise the carrying out of policies most beneficial to Canada's national interests may be impossible. Exports of crude oil should be regarded as a very temporary expedient (export policy is discussed in more detail in the next section). Maximum exploration activity should be encouraged to delimit the reserves as accurately as possible. (According to the Minister of Northern Affairs and National Resources, "Alberta is the only province with a realistic inventory of its oil and gas resources... There is no national estimate of oil and gas reserves and, for all intents and purposes, no list of other national natural assets." (Toronto Globe and Mail, June 10, 1958.) Maximum research activity should be carried on to develop the chemical and other uses of oil as raw material, rather than fuel. In the planning and execution of these activities there is much scope for federal action, despite the fact that the natural resources are under the direct jurisdiction of the provinces.

Natural gas, originally an unwanted by-product of oil development (as witnessed for years by the continuously burning flares at oil wells in the Turner Valley) still tends to be treated as a "free" by-product at the wellhead,



since total development and exploration expenses are written off against crude petroleum. John Davis points out that "a wellhead price for dry, clean, natural gas of 10 cents per thousand cubic feet (the average for Alberta at the present time) is equivalent to a wellhead crude oil price of around 60 cents a barrel,... also equivalent to a bituminous coal price of around \$3.00 per ton." ("Canadian Energy Prospects", page 164, footnote.) This is the reason, the unnaturally low price of natural gas, that it has so rapidly gained a big domestic and export market demand. Already natural gas production in the United States is tending to outrun the discovery of additional reserves. Consequently, all that has been said above about the necessity of conserving Canada's oil reserves for their more valuable use as raw materials instead of fuel, applies with equal force to natural gas.

Export Policy: As a general, long-term policy, basic raw materials should not be exported in unprocessed state. Such exports tend to hold back industrial development in the exporting country, and, in effect, amount to the export of employment opportunities in the processing and manufacturing industries. This is doubly true of the export of energy sources. For the latter are almost impossible to recapture,



once the importing country has built up industries dependent upon them. This reason alone is quite sufficient to warrant the discouragement of any high degree of foreign capital participation in the development of Canada's energy resources.

In our opinion, export of fuels like crude petroleum and natural gas can only be justified as temporary expedients on three grounds:

- (a) when development to meet long-term Canadian demands initially provides a surplus for export which it would be uneconomic not to produce
- (b) when the time lag between development of production and of transportation facilities to Canadian markets results in a surplus
- (c) when the means of payment to obtain needed imports for Canada can only be economically provided by such exports.

In all of such instances, it should be stressed, the export is regarded as a purely temporary expedient. Contracts for the export sale of oil and gas should be expressly drawn to make this point clear, so that the minimum of unforeseen disruption will occur when they are terminated. Obviously, such contracts should only be made for a specified, relatively short period of time,



determined by the underlying economics of the particular situation.

All export contracts for energy must be subject to federal approval. The price quoted between related companies must be watched closely to assure that any allowed exports produce a return to Canada comparable to the average domestic price for the same type of service. With the perspective of eventual prohibition of the export of energy or energy sources (apart from exceptional circumstances referred to above), we propose that presently existing exports should be subjected to the discouragement of an announced, increasing export tax. The tax, in order not to be discriminatory at the outset but to increase rapidly enough to act as a discouragement, might be a specific tax equivalent to something like 2 per cent of the average domestic price for comparable quantities, increasing by an additional similar amount each year - - i.e., equivalent to 2 per cent tax the first year, 4 per cent the second year, 6 per cent the third year, and so on.

During the first four months of this year, Canada's crude oil balance averaged approximately as follows:



	<u>Bbls. per day</u>
Consumption	703,000
Production	472,000
Export	104,500
Apparent Import	335,500

(Source: Financial Post, May 31, 1958)

On this basis Canadian oilfields supplied only 52.2 per cent of Canada's crude oil consumption, and if the imports of refined petroleum products were taken into account the domestic portion would drop to well under 50 per cent. If we had consumed our exports at home, the portion of domestically supplied crude would have been 67 per cent. Production of crude in Canada averaged around 560,000 barrels a day in two months of last year (January and July) and there is general agreement that Canadian crude production could be fairly rapidly expanded to supply all of our requirements. What is needed is expanded refining capacity and additional pipelines, notably an oil pipeline of suitable capacity from Alberta to Montreal. This clearly is the direction in which government policy should be aimed. For the provision of additional facilities will create needed employment in Canada now, and the production for the domestic market will be more stable than the present production for export subject to the whims and



political moves of foreign governments and industries.

Transportation Policy: Since its inception as a nation, Canada has had to solve the problems imposed by great east-west distances and sparse population by means of government assistance designed to serve the national interest. The provision of transcontinental railway systems, the establishment of TCA as a national airline and CBC as a national radio and TV network, the construction of the St. Lawrence Seaway and the controversial Trans-Canada Gas Pipeline have all been accomplished through help from the national treasury, direct or indirect. With the rapid extension of Canada's proven oil and gas reserves and the development of the industries based on these resources, long distance transmission by pipeline at reasonable rates has become as important to the national interest as was low-cost, east-west rail transportation of wheat in earlier days. Where private interests fail to provide these transportation facilities as required, therefore, the federal government (with or without the participation of provincial governments) should not hesitate to provide the facilities at public expenses and subsidize them if necessary to ensure reasonable user charges.

The federal government alone has the



requisite taxing and borrowing power to undertake major projects such as an oil pipeline from the Alberta-Saskatchewan fields to eastern Canada where the great consuming market is situated. There is no question of federal authority to construct such a pipeline, since it involves interprovincial transportation. The responsibility, too, rests squarely on the federal government, since the benefits of such an undertaking are national in character. We submit that the enunciation of a national petroleum policy designed to gear oil and gas production to meet Canadian demand for petroleum products, and the announcement of intention to proceed with the construction of an all-Canadian oil pipeline immediately, would have the effect of stimulating the construction of the required additional refining capacity by private interests and would act as a stimulus to industry generally at this time.

From an economic point of view, oil can be transported more cheaply in terms of energy equivalent than any form of energy (except atomic raw materials).

Cost in cents per 100 miles
per equivalent ton of coal
(27 million B.t.u.'s)

oil - by super-tanker, coastwise	4.5 to 6.7 cents
oil - by 30-inch pipeline, long distance	9.0 to 13.5
natural gas - by 34-inch pipeline, long distance	28.0 to 40.8
bituminous coal - by collier, coast- wise	25.0 to 30.0
bituminous coal - by railroad, long distance	70.0 to 80.0
electric power - by high tension line, 400 mi.	316.5 to 395.5

(Source: John Davis, "Canadian
Energy Prospects", page 348)

As long as oil is used as a fuel, therefore, it is obviously most economic to build the necessary pipelines to transport it. Whatever the eventual pattern of end uses of petroleum, the pipeline facilities will no doubt continue to be the most desirable means of transporting it to processing and marketing areas not served by deep waterways.

A publicly-owned and operated pipeline (probably in the hands of a Crown Company) does not require a government regulatory commission over it. But some form of regulation and control will be required to assure that the benefits of cheap pipeline transportation (provided at public expense) are passed on to the ultimate consumer by the users of the pipelines. An oil or gas company, for example, should not be allowed to



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charge "all the traffic will bear" for petroleum products sold in eastern Canada which have benefitted by cheap transportation of crude oil or natural gas through publicly-owned or public-assisted pipelines from western Canada. In such instances, a form of regulation over petroleum product prices to consumers, somewhat akin to the regulatory functions performed by the Board of Transport Commissioners over railroad rates, will be necessary.

Federal Ministry of Energy Resources:

In our opinion, it is wrong to place various aspects of policy making and administration for different energy sources in different government boards and commissions. At the present time, for instance, apart altogether from the additional complication of provincial government bodies, coal policy is under the jurisdiction of the Dominion Coal Board, water power is subject to decisions of the International Joint Commission and the Northwest Territories Power Commission, all aspects of atomic energy development are under the exclusive control of the Atomic Energy Control Board, exports of electric energy are under federal licence, and so on. Energy development is so basic to progress in a modern industrial nation that the national policies should be co-ordinated, and this at the highest



level. That is why we consider that the importance of Canada's energy policy merits a federal department with a Cabinet Minister in direct charge. An Energy Board, under the Minister of Northern Affairs and Natural Resources, or some other Minister, would not give the proper status as reflected in the authority exercised over Canada's energy development or in the direct responsibility to the Canadian people for the proper administration of our energy resources. Nor, in our opinion, can the Department of Northern Affairs and Natural Resources give the attention required by Canada's energy program - - the scope and complexity of northern affairs alone are enough to keep one department fully occupied.

In our submission to the Royal Commission on Canada's Economic Prospects (December 1955) this union expressed views on an energy development program for Canada which we should like to repeat here.



"Our country is certainly among the most favoured in the world in its power potential, with its vast hydro electric power resources, its rich uranium resources for this new era of atomic energy, its oil, its natural gas, and its coal. Properly developed and used, these rich power potentials can bring Canada to first rank among the nations of the world in industry and in living standards for its people. But we believe that the full benefit of these rich resources can be secured only through a bold national programme, for which the basic responsibility must be undertaken by Governments, primarily the Federal Government.

We emphasize the need for a long-term national plan of power expansion in all fields -- water power, atomic power, oil, natural gas, and coal designed to create maximum job opportunities for Canadians. Even a brief outline of such a plan indicates that it must be designed to produce job opportunities in a variety of ways.

Canadian power resources should be developed under Canadian control in the interests of Canadians, and as far as possible by Canadians and Canadian capital. Our union has always favoured and publicly campaigned for an all-Canadian St. Lawrence Seaway and Power plan, and for an all-Canadian Gas Pipeline. Under

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no circumstances, we believe, should Canada's sovereign rights to its own power resources be sacrificed by making short-sighted deals with the United States Government or United States private investors. Such deals may promise temporary returns in money, or even in power, but in the long run, Canada would lose by alienating its own power rights, at least as much and, we believe, even more, than it does by exporting its valuable mineral resources. Once gone, neither can be replaced, and a valuable resource that could have provided the basis for Canadian industrialization will be lost forever. In our view, Canada's own opportunities for development are so great that we will be able to use, and will need, all our potential power within Canada.

In such important industries for Canada's national future as power supply, direct Government ownership should play an important part, so the use of the power can be planned in the best interests of the nation as a whole. We consider that direct Government financing, certainly of major projects, is fully justified as an investment in the nation and that it will be well repaid in terms of general economic development, and consequently also in higher tax returns.



Power projects should be planned to bring new power to areas presently running short, and to new areas and groups of consumers. These new power supplies would stimulate the development of Canadian natural resources for the use of Canadian industries, and the growth of new industries to process Canadian natural resources, thus contributing in both ways to the industrialization of Canada. In this regard, we believe that the Federal Government should, in the national interest of Canada as a whole, undertake the planning and financing of costly major projects in such power-starved, under-industrialized areas as the Maritime Provinces, Saskatchewan, and the northern parts of our country, in order to give these areas an opportunity to industrialize rapidly.

Planning of power development should provide for a steady rate of expansion related to the long-term development of our Canadian economy. We believe that the present method of timing power developments in relation to short-term ups and downs of industrial activity results in a drag on Canada's progress generally. Certainly, it creates serious problems for the electrical manufacturing industry, by facing its important power equipment section with a constant alternation of



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feasts and famine in terms of orders.

National planning of power developments should also include (and this is a very important point for the electrical manufacturing industry) an emphasis on the use of Canadian equipment, materials, and services in the construction and equipment of new power projects."

To summarize: we foresee the general scope of the proposed Energy Ministry's activities to include --

(a) the development of national energy policies

(b) general supervision over and parliamentary responsibility for the various Crown Companies set up in the energy field.

(c) assuring that the required exploration and research work to define Canada's energy resources and find their best applications to serve the welfare of the Canadian people are carried on extensively

(d) working with and assisting the provinces to co-ordinate their resource development and administration to fit into the national energy program.

Elements of Anti-Depression Activity in Energy Program Needed Immediately: It is widely conceded that the present economic situation demands government activity to render the utmost help in fighting back the effects of the down-swing. It is our view, that despite some apparent improvement



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in the economic situation this summer, we shall enter the late autumn and winter with much higher unemployment levels than in 1957-58, with consequent worsening of the position of a large number of working families, unless very drastic steps are taken to avoid this. Energy policy, which so basically affects diverse aspects of the economy, is an important field where government activity could be devised to help the general economic situation immediately. We list some specific examples of such activities hereunder:

1. Enunciation of the policy of providing Canadian petroleum requirements from Canadian sources of supply. This will act as an incentive to private industry to extend gathering and product lines and to start expansion of refining facilities to handle the full Canadian demand.

2.. Announcement of the project to build an all-Canadian oil pipeline from the western oil fields to eastern Canada, and commencement of this construction at the earliest possible date. This is particularly important to take up the slack already developing as the Trans-Canada Gas Pipeline nears the final stages of construction.

3. Start an extensive federal-provincial exploration program to determine as accurately as possible within a reasonably short period of years exactly what our energy resources are and exactly where they



are located. This is obviously basic to the determination of any realistic long-term energy development and conservation policy.

4. Start an extensive research program to develop new uses for the valuable raw materials contained in the fossil fuels. This research work can be carried on in three ways -- directly by the government through the National Research Council and other agencies, research subsidized by the government in universities as is now done with atomic energy to some extent, and joint government-industry research.

MR. BOSNICK: Need to Assure Employment Opportunities in Supply Industries -- Illustration of Situation in Welland: The situation which has developed recently in Welland, the home of the only Big Inch pipe producer in Canada, illustrates where appropriate government action on energy policy should carry through to benefit other sectors of the economy. It seems elementary that the development of Canadian energy resources for the benefit of the Canadian people should assure maximum employment opportunities for Canadian workers. This implies that to the greatest extent possible materials and supplies used in the energy development programs, and in the transportation facilities between sources of supply and markets, should be manufactured in Canada by Canadian workers in Canadian plants.

There are five major pipe and tube



manufacturers in Canada. According to the Financial Post --

"These plants now can turn out virtually all the major pipe, casing and tubing the oil and gas industry requires."

One of the oldest manufacturers and the largest, Page-Hersey Tubes Limited in Welland, Ontario, has an annual production capacity of over 500,000 tons ranging in sizes from 1/2 inch to 16 inches.

Welland Tubes Limited was organized jointly by Page Hersey and the Steel Company of Canada to manufacture pipe from 20 to 36 inches in diameter. Originally designed for an annual production of 200,000 tons of such pipe, the plant began operations in February, 1957, and progressively increased the production rate in the ensuing months.

Yet according to government trade statistics and the Financial Post survey some \$135,000,000 of pipe and tubes of all sizes were imported into Canada last year.

In January and February this year over 85,000 tons of pipe 10 1/2 inches in diameter and over-valued at about \$15 million were imported into Canada from the United Kingdom and the USA.

The Canadian pipe and tube companies should today be flourishing and running at peak capacity in view of the amount of pipeline construction



which has taken place in 1957 and early 1958.

Unfortunately the opposite is true.

Page-Hersey Tubes, which employed an average of 1,250 workers during and since the war, went up to a peak of 1,400 workers in early 1957, but due to lack of orders started to cut back in September of 1957 until there were 600 workers laid off up to and including the month of March, 1958. In spite of seasonal improvements since March, operations have been running at a 30 per cent reduction.

Parallel with these cutbacks at Page-Hersey, the new Welland Tubes Plant has announced a shut-down effective July 11, 1958, for an indefinite period. and management has indicated that this shut-down could extend into 1959. As a result some 350 employees are left without jobs.

Here we are talking in terms of 1,000 workers who are directly affected by loss of employment. Many more, however, are also affected indirectly. The plants which manufacture the steel plates and skelp for the pipe will also cut back production, and so will other allied industries supplying components used in the pipe-making process. As a concrete example of this cumulative affect, another Welland industry, the Electro Metallurgical Company which manufactures alloys for the steel industry, has laid off some 600 workers from their normal





complement of about 1,100. The repercussions of this amount of unemployment in the local economy of Welland are too obvious to need elaboration.

Naturally this is a matter of vital concern to our Union, whose members are employed and live in Welland. Discussion of the problem by union officers and Welland Tube Company officials has disclosed the fact that the large scale imports of pipe from Britain and the United States has greatly limited the amounts of Welland pipe used for the Trans-Canada Gas Pipeline. While the recent federal budget made some adjustments in the customs tariffs on such pipe which should help in the future, the fact remains that only new orders now will be of any immediate aid to the unemployed Welland workers, their families and their community.

Government announcement of the decision to go ahead with the construction of an oil pipeline to the east from Alberta, and negotiation of a contract with the pipe manufacturers, could assure many months of full scale production at Welland Tubes. Production could start at once and the pipe stockpiled at points along the line with immediate benefit not only to the Welland Tubes workers and their families, but also to the whole Welland community which is being hard hit with unemployment.

It is for reasons such as this, that we strongly recommend that government action be taken



quickly to proceed with every element of Canada's energy program which can help bolster up the level of economic activity in the immediate future.

THE CHAIRMAN: Thank you very much.
Mr. Pattillo?

MR. PATTILLO: I just have one or two questions, Mr. Bosnick. Could you give us any idea as to how many miles of the 30-inch pipe the Welland Tube are able to manufacture in the calendar year?

MR. BOSNICK: I am informed, sir, that they can manufacture on an average about three miles per day for a 24-hour period.

MR. PATTILLO: And the size of the pipe is 30-inch which is the largest they can manufacture?

MR. BOSNICK: They can manufacture up to 36-inch, but I understand that they are only set up to 34; that they have to order additional dies for the 36. Would, I think, be a very short span of time in which to achieve that.

MR. COMMISSIONER HARDY: Mr. Pattillo, on that point I wonder if you could find out if they can manufacture up to 36-inch using Canadian steel?

MR. PATTILLO: Do you know that, Mr. Bosnick, whether they are able to use Canadian steel for sizes larger than 30-inch?

MR. BOSNICK: I am not certain, sir, from the point of view that I don't think that Stelco,



the main source of supply for Welland Tube, can roll skelp that wide.

I am not positive. I know that most of their current supplies are being manufacture by Canadian Steel Company, the skelp and sheet that is used on the top of the pipe.

MR. PATTILLO: What is the largest size that you have seen rolled from Canadian steel?

MR. BOSNICK: 30-inch pipe is the largest that we manufacture in Welland. So far there have been no orders, as far as I understand, for 34 or 36.

MR. COMMISSIONER BRITNELL: Mr. Chairman, just one point in connection with that last question: I am not quite clear whether 30-inch is the largest that was ever rolled. You mentioned 34-inch orders. Have they actually been rolled from Canadian steel or is that something for the future?

MR. BOSNICK: The largest that has been manufactured as far as Welland Tube is concerned so far is 30-inch pipe. There have been no 34 or 36 manufactured yet, but I understand that they can be supplied by Canadian suppliers as far as 34-inch is concerned. I am not certain as far as 36 is concerned, whether they are set up for that size.

MR. COMMISSIONER BRITNELL: But you are reasonably assured that they could, that Canadian manufacturers could supply steel to manufacture 34-inch pipe?

MR. BOSNICK: Well, I couldn't give a qualified answer on that, sir, from the point of view that I do not represent the steel industry and I cannot speak on their behalf. I am not certain as to what the steel industry is set up to supply in that regard.

MR. COMMISSIONER BRITNELL: I thought you mentioned that in the end of your answer to Mr. Pattillo that there were orders for 34-inch pipe?

MR. BOSNICK: No, not that we know of.
No.

MR. COMMISSIONER LADNER: Mr. Bosnick, I was interested in your suggestion that a separate ministry of the Government should be set up to handle all matters concerning energy, in so far as governmental participation or direction is concerned. Do you mean that this ministry would be a ministry such as Trade and Commerce?

MR. BOSNICK: I understand that Mr. Jackson made that suggestion.

MR. COMMISSIONER LADNER: Separate department?

MR. JACKSON: Probably I should answer that; it was in the presentation I made. Yes, we view the matter of energy as being of equal importance say to transportation, health, or any of these other fields in which it has been found necessary and advisable to establish fully-fledged ministries, and our



proposition is just that we would bring under such a ministry all forms of energy -- water, gas, oil, nuclear power, and hydro -- and that would be an energy agency which would in that respect be more closely integrated with general government policy on the basic economic questions.

MR. COMMISSIONER LADNER: And your idea would be, there would be some portion of the ministry open for representation, and so on, as in the case of an ordinary ministry?

MR. JACKSON: I would say so.

MR. COMMISSIONER LADNER: Rather than a semi-independent board, if I may say, like a National Energy Board?

MR. JACKSON: Having established a ministry, having the one ministry responsible in those fields, there would still be opportunity and room probably for the establishment of Crown Corporations or other media of administration in separate fields but responsible to the minister.

MR. COMMISSIONER LADNER: Well, we now have the Ministry of Natural Resources and Northern Affairs. You think that would not be sufficient?

MR. JACKSON: Well, in our opinion they have a large enough task on their hands at the present time in terms of the projection of the development of our northern areas. That is a task of some magnitude. We would think to lump the two



together would be placing too wide a field of responsibility on one ministry.

MR. COMMISSIONER LADNER: Thank you.

MR. COMMISSIONER HOWLAND: Mr. Chairman, just one question. Mr. Bosnick, it may be your question, I don't know. You mentioned that there were \$135 million of imported pipe. Have you any idea if that is arising out of the special sizes or type of pipe involved? Where is the leak there? Why isn't Canada producing \$135 million - -

MR. BOSNICK: You have probably heard that the Government just increased the tariff on pipe coming into the country, but according to the Financial Post information the \$135 million imports represents the total import of all sizes of pipe coming from the U.K. and from United States, and I imagine from some other European countries.

I haven't got the actual breakdown of the different sizes and the amounts coming from each country, although we do have some of them. The figure of \$135 million worth was the one that was quoted by the Financial Post in relation to the increase in tariff which would have a bearing on this \$135 million worth of pipe coming into the country.

MR. COMMISSIONER HOWLAND: I just wondered whether you had followed through to find out just exactly what type of pipe. There must be a



substantial value or volume to get to \$135 million?

MR. BOSNICK: We think some of that -- for example, for 1957 our information is that from the U.K. there were some \$14,783,000 worth of pipe coming in; and from the USA some \$53,000,000 worth.

MR. COMMISSIONER HOWLAND: Have you any idea of the size of that?

MR. BOSNICK: That is from 10 1/2 inch and up.

MR. COMMISSIONER HOWLAND: It looks as though it is a matter of price rather than size because Canada can manufacture 10 1/2 inches and up?

MR. BOSNICK: Oh, yes.

MR. COMMISSIONER HOWLAND: Up to 30?

MR. BOSNICK: Yes. Well, part of the problem in connection with, for example, Welland Tubes is that the company actually did not get into operation in time to receive the orders from the Trans-Canada Pipeline. They only got the tail end of the orders. As a result, quite a number of -- well, the major portion of the pipe requirement was placed outside the country, because there was no pipe plant in Canada could manufacture those sizes. Since that time, however, the plant is in operation and can manufacture and has no orders.

THE CHAIRMAN: The horse has left the stable.

MR. BOSNICK: And closed the door too;



or they opened it too late in this case.

THE CHAIRMAN: I think in fairness that is the answer to the \$135 million, or a large portion of it.

MR. BOSNICK: Yes, but - -

THE CHAIRMAN: The facilities were not here in Canada when the orders for those major pipelines, such as Westcoast, and Trans-Canada, speaking of gas, had to be placed.

MR. BOSNICK: We understand that, but from the point of view of the future we are concerned that everything be done that is possible to be done to create the situation where Canada manufactures, will manufacture this and thereby create employment for Canadians.

THE CHAIRMAN: I don't think any member of the Commission would take any different view from that, on that score.

Thank you very much, Mr. Jackson, and your colleagues and men representing the Union. We are very happy to have your submission. We all have the opportunity of going over it. We appreciate your condensing it this morning, because we do have a lot of submissions made to us. It is very good of you to come, and also to change the time. We know that you were not supposed to come until ten o'clock this morning, but we appreciate your co-operation. Thank you very much, indeed.



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THE CHAIRMAN: Gentlemen, the hearing of the Commission will now be adjourned until Monday morning in this Council Chamber at ten o'clock, at which time we shall have the submissions of the Alberta and Southern, and Trans-Canada and Union Gas Company of Canada. The hearing is now adjourned.

---Whereupon these proceedings adjourned at 10.00 a.m., to resume at 10.00 a.m., Monday, July 21, 1958.

Mr. Bowden

ROYAL COMMISSION

ON

ENERGY

HEARINGS

HELD AT

MONTREAL

P. Q.

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ROYAL COMMISSION

on

ENERGY

Proceedings of hearings
held at Montreal, P. Q.,
commencing Monday, July 14,
1958

PRESENT:

MR. H. BORDEN, C.M.G., Q.C.	- Chairman
MR. J. L. LEVESQUE	- Member
DR. R. D. HOWLAND	- Member
DR. R. M. HARDY	- Member
MR. L. J. LADNER	- Member
MR. G. E. BRITNELL	- Member

COMMISSION COUNSEL:

Mr. A. S. Pattillo, Q.C.

Mr. M. H. Patterson

Mr. J. F. Parkinson	- Secretary
Major N. L. Lafrance	- Asst. Secretary



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E X H I B I T S

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M-21-3	Blue-covered brief submitted by Union Gas Company of Canada Limited	8287
M-21-4	Grey-covered brief submitted by Union Gas Company of Canada Limited	8287



Monday,
July 21, 1958.

---On resuming at 10.00 a.m.

THE CHAIRMAN: Gentlemen, the Commission will now resume its hearings. Mr. Pattillo?

MR. PATTILLO: Thank you, Mr. Chairman. Mr. Chairman, I understand that the Secretary has some documents that he has received which he wishes to put into the record first.

THE CHAIRMAN: Mr. Parkinson?

MR. PARKINSON: With your permission, Mr. Chairman, I would like to suggest that we put on the record a communication from Canadian Bechtel Limited in the form of a three-page letter which constitutes a revision of some of the figures that were put in in Canadian Bechtel's brief several weeks ago. I might suggest we mark it M-21-1 and have it formally written into the record without, I would suggest, reading it.

---EXHIBIT M-21-1: Letter from Canadian Bechtel Limited.

Canadian Bechtel Limited,
25 King Street West,
Toronto 1, Ontario, Canada
July 16, 1958

Henry Borden, Esq., C.M.G., Q.C., Chairman,
The Royal Commission on Energy,
Montreal, Quebec.

Dear Mr. Borden:

In reviewing the material presented in our submission



to The Royal Commission on Energy concerning alternative methods of transporting Western Canadian crude oil to Montreal, we find that the Toronto-Montreal extension for delivering 42,500 barrels per day through the expanded Interprovincial system should be a 14-inch diameter pipeline rather than a 10-inch.

This change results in minor increases in two significant numbers in the submission: our estimate of the capital cost of expanding the system and our estimate of the transportation cost at an average daily volume of 42,500 barrels.

Our conclusions are in no way affected.

May we recommend that the submission be corrected in accordance with the enclosed corrections sheet.

Very truly yours,
S.M. Blair, President,
by H.F. Waste

CORRECTIONS

July 16, 1958

to Canadian Bechtel Limited's submission to
The Royal Commission on Energy, dated July 1958

Transporting an average daily volume of 42,500 barrels through an expanded Interprovincial system requires that the Toronto-Montreal section be a 14-inch diameter pipeline rather than 10-inch as stated in the submission. Only two significant numbers are affected by this change: estimated capital cost and estimated transportation cost. The other numbers affected are of secondary importance.

1. The first part of the report is a general

statement of the purpose of the study.

2. The second part is a description of the

method.

3. The third part is a description of the

results of the study, and a discussion of the

conclusions drawn from the results.

4. The fourth part is a summary of the

findings of the study, and a discussion of the

implications of the findings for future research.

5. The fifth part is a list of references.

6. The sixth part

is a list of appendices, if any.

7. The seventh part is a list of tables, if any.

8. The eighth part

is a list of figures, if any.

9. The ninth part

is

10.

11.

12.

13. The tenth part is a list of footnotes, if any.

14. The eleventh part

is a list of acknowledgments, if any.

15. The twelfth part

is

16. The thirteenth part

is a list of abbreviations, if any.

17. The fourteenth part

is a list of symbols, if any.



The submission's conclusions are not affected at all.

1. Changes in Primary Numbers:

A. Toronto-Montreal extension: 14-inch instead of 10-inch.

This affects: - Table 7, p. A-9, 3rd line under "Facility" - Table 8, p. A-10, 4th line under "Description of Facilities".

B. Capital cost: \$60,783,000 instead of \$55,582,000.

This affects: second tabulation, p. 14, 1st figure under "Total" - Table 8, p. A-10, 1st figure under "Total" - Table 9, p. A-11, 1st figure opposite "Cost of Plant".

C. New capital required: \$38,783,000 instead of \$33,582,000.

This affects: second tabulation, p. 14, 1st figure under "New Capital Required" - tabulation, p. 16, 1st figure in last column.

D. Unit transportation cost: \$0.754/bbl instead of \$0.680/bbl.

This affects: - tabulation, p. 15, 1st figure under "Transportation Cost" - tabulation, p. 16, 1st figure in 4th column - Figure 1, initial point of black line for expanded Interprovincial system - Table 9, 1st figure opposite "Unit Cost of Transportation".



II. Changes in Related Numbers:

<u>Page</u>	<u>Item</u>	<u>Change</u>	
		<u>From</u>	<u>To</u>
A-9	Table 7, 1st column		
	(1) "New Stations"	14,000	16,000
	(2) "Total Additional Pump Station Horsepower"	40,000	42,000
	(3) "Number of New Stations"	3	4
A-10	Table 8, "Detail" column, 3rd figure	\$16,905,000	\$22,106,000
A-11	Table 9, 1st column		
	(1) "Operation"	\$ 1,101,000	\$ 1,327,000
	(2) "New Facilities"	\$ 2,771,000	\$ 3,200,000
	(3) "Income Tax"	\$ 2,464,000	\$ 2,695,000
	(4) "Net Income"	\$ 2,779,000	\$ 3,039,000
	(5) "Total Annual Transportation Costs"	\$10,545,000	\$11,691,000



Submission of

ALBERTA AND SOUTHERN GAS COMPANY LIMITED

APPEARANCES:

Dr. Donald E. Armstrong
Mr. F.A. Hough
Mr. Sherman H. Clark
Mr. Ross A. MacKimmie

MR. PATTILLO: Mr. Chairman, we have next a submission which has been submitted by the Alberta and Southern Gas Company Limited. It is prepared by the Economic Research Corporation Limited of Montreal and Stanford Research Institute of California. It relates to their estimate and study of the proposed markets of Trans-Canada. I am proposing that this document be marked as M-21-2, and I will ask Mr. MacKimmie, who is here as counsel, if he will start off. I understand Mr. MacKimmie has a few introductory remarks that he wishes to make.

THE CHAIRMAN: Excuse me, Mr. MacKimmie. Mr. Pattillo, is it your intention that this should go verbatim into the transcript or not or filed?

MR. PATTILLO: Well, I think it should be filed. I don't think that there is any need for all these schedules to go verbatim into the transcript.

THE CHAIRMAN: I think that would be the Commission's view.

MR. MacKIMMIE: If it please the Commission, Mr. Chairman and gentlemen, before calling upon the



witnesses to present this study that has been prepared which Mr. Pattillo referred to, I would, sir, like very much to explain very briefly why Alberta and Southern are here at this time presenting this particular study. If you recall, Mr. Chairman, when we appeared with our main submission in Calgary in January of this year Mr. Horton, the President of Alberta and Southern, and Mr. Black of the Board of the principal sponsor, Pacific Gas in California, stated that they would fully expect that Canadian Governments, both Federal and Provincial, as well as Administrative Boards, would see to it that no natural gas was exported from this country until the true and sincere markets for Canada were first met. You will also recall that it was after this presentation that Trans-Canada Pipeline, through Commonwealth Services Incorporated, New York, presented a study to your Commission saying that very substantial quantities of natural gas were required for what they considered to be the Canadian markets, and, Mr. Chairman, our approach then was, if that be sound, that it would be wise from our own point of view to look into the Eastern Canadian markets, not that the volumes required would necessarily jeopardize our project, but we may want to take a look at the timing and what we want to do.

So the first thing I want to be understood is that this study was prepared primarily for the



company to that end, and, with the view in mind that possibly we would submit it before your Commission, sir, we retained the Economic Research Corporation and the Stanford Research Institute to prepare this study for us. We also asked, in the event that it would be presented here, so that we could evaluate ourselves where those differences, if there be differences, were shown, that we wanted explanations between the two so that we could make up our own minds as to the degree of reliability we could place on it.

One thing I am specifically indstructed to advise, not only this Commission, is that, while there are very sharp and pronounced differences in these studies, neither Alberta and Southern nor any of the sponsors or the people who prepared this have any idea that the results of this study prejudices the Trans-Canada project. It is our view that it is a sound project and it has a future, bearing in mind not the future that we feel, perhaps what others feel, but it would be an error to infer that we are casting doubts on the future of that particular company.

That is the chief reason that we are here today. We never realized the importance of Canadian markets when we appeared in January, and after our own study we thought we would do something about it.

Now, you asked Mr. Pattillo if he intended



to put it in, and certainly we will take your guidance and Mr. Pattillo's guidance on it. I have instructed the witnesses, if they could, to summarize the whole report, due to the fact that you are getting into the dying days of your present sittings, sir, but it is not to be understood that we want to run through it any quicker than you want us to. But if, in the future, the staff would want to discuss with the gentlemen who prepared this study, then certainly their working papers would be available at all times.

I would now like, sir, to introduce the three witnesses who are presenting this report, because they are responsible for different sections of it.

The executive director of the Economic Research Corporation Limited of Montreal is Dr. Donald E. Armstrong, second from my left. He has B.A., B. Com. degrees from the University of Alberta; he is a P.H.D. in Economics from McGill and University of Manchester; he is assistant professor of the School of Commerce at McGill, and, as I said, he is executive director. He has appeared before the Borden Commission and submitted, I believe, on behalf of the Province of Newfoundland their submission to the Commission for Revision of Terms between Newfoundland and Canada.

On behalf of the Stanford Research



Institute, the witness will be Mr. Sherman H. Clark, who is on my far left. Mr. Clark has his B.S. and M.S. degrees in Mechanical Engineering from Harvard; he has had two years of post-graduate work at Stanford University; he was Project Engineer for 2 1/2 years with General Electric at Hanford Works, Washington. For the past six years Mr. Clark has been with Stanford Research Institute, Menlo Park, California, and he is head of the Construction and Mechanical Industries Economics. He has conducted 15 pipeline market studies in the United States, Canada, South American and Europe.

The final witness, on my immediate left, I believe is known to the Commission, having appeared before Mr. F.A. Hough, who is a registered mechanical engineer, having graduated from the California Institute of Technology. He was employed by Southern Counties Gas Company of California from 1925 to 1954. I believe I gave his qualifications before, but he is chief engineer of the Corporation, Pipeline Division.

Mr. Chairman, I haven't been with you since January, and I don't know whether you wish to have these witnesses sworn. If you do, sir, fine.

THE CHAIRMAN: No necessity, Mr. MacKimmie.

MR. MacKIMMIE: Mr. Pattillo, if you would ask to present the report.

MR. PATTILLO: Well, whichever one of the



gentlemen is going to be charged with starting off.

MR. MacKIMMIE: I am sorry, Mr. Pattillo, Dr. Armstrong will be chiefly responsible for the direct testimony, and I would ask that questions be directed to Mr. Clark in cross-examination.

MR. PATTILLO: Dr. Armstrong, are you prepared to go ahead on your own and give us a summary of the report?

DR. ARMSTRONG: Yes, that is what I propose to do, sir.

Mr. Chairman, Commissioners, before I launch into this report, there are a few comments which I would like to make about it. The report is essentially a sales forecast of the gas sales in Eastern Canada and markets considered to be available to Trans-Canada Pipe Line. The report has been prepared by Stanford Research Institute of California and by the Economic Research Council, a Canadian Company, with which I am associated.

Our primary objective was to prepare a factual and objective forecast, analysis, of the fuel and energy requirements of Ontario and Quebec. As Mr. MacKimmie has pointed out, we were also instructed that if our results varied from those presented to this Commission by Trans-Canada Pipe Line, we were to set out those differences and, where possible, to explain them so that the Commission may be in a position to evaluate the position, and we



have tried to do this. Section 9 of this report includes a comparison of the estimates presented here and the estimate presented to this Commission by Trans-Canada Pipe Lines.

Now, in a nutshell, we have found that if we used the prices, we assumed the prices of the gas distributors in the Eastern-Canadian markets Trans-Canada could reasonably expect to sell up to 1963 about 670 billion cubic feet of natural gas. Extending this period onto 1988, according to our estimates Trans-Canada could reasonably expect to sell something just under 11 trillion cubic feet.

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Now, this estimate, you understand, is based on rates now in effect. We made another set of estimates based on prices which according to the Bechtel Corporation would cover cost of service and on the basis of these cost of service estimates we calculated Trans-Canada may expect to sell 560 billion cubic feet of gas in the first six years of pipe line operation, that is up to 1963, and 9.2 trillion cubic feet of natural gas up to 1988. These are cumulative sales figures. You will probably recall that these estimates are very different from those presented to this Commission by Trans-Canada Pipe Lines. Our estimate on cost of service basis for the first six years is appreciably below the Trans-Canada estimate; in fact, Trans-Canada estimate is, I believe, almost 70 per cent above the estimate which we have here. If we go to the longer period their estimate is 100 per cent in excess of the estimate which we present in this report.

Now, I have mentioned two bases for making our sales forecast and since we will be referring constantly to these two bases this morning, perhaps it would be well if I said a word about them just to clear up any misunderstanding which might arise. The quantity of gas which can be sold in any market



is obviously a function of price. This is true of the firm industrial market. Now, dealing with people who are expert in keeping costs down, we are dealing with a market which has alternative fuels. Almost anything you can do with gas can be done with any fuel or electricity. Now, this being so we were faced with the problem of selecting a price or prices on which we could base our sales forecast. Now, an obvious choice and one which formed a basis for one of the sales forecast we made is from the prices now in effect or proposed in Eastern Canada. The question is, of course, will this prevail in the future? To answer this question our client requested the Bechtel Corporation to provide a study of the cost of service of Trans-Canada pipe line and a second estimate was based on rates which according to the Bechtel study would be necessary to cover the full cost of service.

Now, I do not propose to read this report, because it is much too full of numbers and tables but perhaps it would be useful if I read the first two sections which are very brief.

This report presents the results of a study made by Economic Research Corporation Limited (ERC) of Montreal, Canada, and Stanford Research Institute (SRI) of Menlo Park, California, for Alberta and Southern Gas Co. Ltd., on markets



for natural gas in eastern Canada. The object of the research program was to develop careful, fully documented estimates of the potential market for natural gas in Ontario and Quebec for the period 1957-1988. The estimates were made within the economic and energy framework of eastern Canada but are based upon an analysis of the experience of the natural gas industry in developing new markets in Canada and the United States. Basic to the entire study is the concept of gas demand as a function of competitive price in the fuel market of eastern Canada. In examining the effect of price on the size of the market, two situations have been considered:

1. The published rates for each class of service under which the gas companies currently operate or propose to operate in each area.
2. A set of rates based on a separate study of "cost of service" made by Bechtel Corporation. For convenience, this study has been incorporated in this report.

Estimates of this market were submitted by Trans-Canada Pipe Lines Limited (TCPL) to the Royal Commission on Energy (the Borden Commission) of Canada and to the Alberta Oil and Gas Conservation Board at Calgary in February and March, 1958 in connection with the Alberta and Southern and West Coast Transmission Hearings



before this Board. These estimates, labeled by the Alberta Board as Exhibit 47 of the West Coast Hearings, were prepared by Commonwealth Services, Inc. for TCPL. At the request of Alberta and Southern, the estimates given in the ERC-SRI study are compared with those in Exhibit 47 and, wherever possible, an analysis of the differences is made.

The comparisons given between ERC-SRI figures and those in Exhibit 47 primarily concern total firm use, plus distribution companies' use and losses. Comparisons were made, however, based upon estimates of total sales, including interruptible use, for over-all market comparison purposes. In this study, the calculation of potential interruptible sales is made on the basis of the maximum off-peak sales required to effect high load factor operation, utilizing underground storage only to the extent presently contracted for. It was beyond the scope of this study to determine the most economic balance between underground storage and interruptible sales.

In addition to Ontario and Quebec, TCPL will serve Saskatchewan and Manitoba, and has a contract to export gas to the United States from Emerson, Manitoba. Market data for export sales are excluded from consideration in this report. Market data essentially as set forth



by TCPL for the two Prairie provinces are used in this study for the purpose of comparing estimates of the over-all Canadian market. Independent projections of these markets were not prepared in this study.

The **projections** of these markets were not prepared in this study.

The projections presented in this report are for 1957-58 to 1987-88 (November 1 to October 31, the fiscal year of TCPL). The market potential is broken down by type of use and by area as follows:

Type of Use

Residential

Base use (cooking, water heating,
refrigeration, etc.) Space heating

Commercial

Firm Industrial

Total Firm Use: Equals the sum of these
categories

Interruptible Industrial: Includes industrial consumers of fuel who contract for natural gas with the agreement that service can be interrupted under a specified set of conditions.

Area (See Figure 1)

No. 1--Northern: The area served by Northern Ontario Natural Gas Co. Ltd., which covers, generally, the area north of



Lake Superior and Lake Huron, from the region near the Ontario-Manitoba border to Sudbury.

No.2--Niagara: The Union Gas Company and all its subsidiaries, which include all of western Ontario except Lincoln and Welland countries.

No.3--Central: Central and eastern Ontario, and Lincoln and Welland countries. This includes the market area of Consumers' Gas Co. and any other companies, such as Lakeland Natural Gas Co., which may operate in this area. Ottawa, Ontario, and Hull, Quebec, are included in this area.

No.4--Montreal: This includes Montreal and the South Shore, the market area of Quebec Natural Gas Corporation.

Two field surveys were made by the ERC-SRI team to provide specific information. One was a survey of industrial fuel consumers in Ontario and Quebec, conducted to determine fuel usages and prices paid for fuel. The other was a survey of the operation of 20 gas utilities in the United States and Canada, to determine their experience in the growth of natural gas markets.

The study was directed by Dr. Donald E. Armstrong of Economic Research Corporation



Limited and Sherman H. Clark of Stanford Research Institute. H. Gordon Pearce of Stanford Research Institute was project leader. Assisting in the study were Edward L. Scarff, J. L. Brizzolara, Jr., Henry Laurant, S. A. Cogswell, F. P. Lyte, Ronald Freund, D. Cohen, J. A. Marshall, T. Jigantus, and D. H. Hay. Peter G. Behr of Bechtel Corporation provided technical assistance on certain aspects of the study. Professors James C. Taylor and John L. Wettlaufer of the University of Western Ontario School of Business Administration assisted with the industrial survey.

Economic Research Corporation Limited and Stanford Research Institute gratefully acknowledge the co-operation of the many companies and government agencies in Canada and the United States that provided information basic to the study.

Conclusions

It may be concluded that:

1. The total Canadian sales of TCPL are estimated to be 142 billion cubic feet in 1962-63, and 539 billion cubic feet in 1987-88. To meet these sales, cumulative requirements for Alberta natural gas would be 560 billion cubic feet through 1962-63, and 9.2 trillion cubic feet through 1987-88. The requirements through 1962-63 are 60 per cent of those estimated in Exhibit 47, and less than 50



- per cent for the period 1957-58 to 1987-88.
2. The price at which natural gas is offered for firm industrial use will have a major impact on firm industrial demand. At some price levels, a 20-per cent increase in the price can halve the demand.
 3. The price of natural gas in eastern Canada for firm service is expected to be increased appreciably over rates presently in effect or pending.
 4. Several factors may cause a natural gas market development in eastern Canada lower than that stated as conclusion 1. Some of these factors are a slower rate of economic development than that used in this study, depressed prices of competitive fuels, and fuller utilization of underground storage (which would result in a lower requirement for interruptible fuel).

Summary

The ERC-SRI estimates of cumulative requirements for Alberta natural gas for firm and interruptible Canadian sales of Trans-Canada Pipe Lines Limited (TCPL) are given below. The gas requirements are based upon the market potential under two sets of prices: (1) published rates under which the gas distribution companies in eastern Canada presently operate (or propose to

operate); (2) price calculated to reflect the
"cost of service."

Cumulative Requirements
(trillions of cubic feet of natural gas)

7-58 to
and
cluding.

	<u>Published Rates Basis^{1/}</u>			<u>"Cost of Service" Basis^{2/}</u>		
	<u>Firm</u>	<u>Inter- ruptible</u>	<u>Total</u>	<u>Firm</u>	<u>Inter- ruptible</u>	<u>Total</u>
-63 (6 yrs.)	0.49	0.18	0.67	0.41	0.15	0.56
-88 (31 yrs.)	7.56	3.36	10.92	6.39	2.84	9.23

/ Published rates of the gas distribution companies. See Appendix C.)

/ As defined by Bechtel Corporation in Section V, "Cost of Service" includes price paid to producers plus transmission costs including return on operating company's rate base necessary to keep the company in sound financial condition.)

For the first five full years of operation (plus the year of conversion, 1957-58), it is estimated that TCPL will require 676.3 billion cubic feet of Alberta natural gas to meet its Canadian markets, assuming the present rates can remain in effect. If the consumer prices reflect "cost of service," however, requirements for the same period are estimated to be 560 billion cubic feet. This lower requirement is based upon rates which reflect a "cost of service" analysis made by Bechtel Corporation. This analysis indicates that "city gate" prices for natural gas to the distribution companies in eastern Canada should be increased appreciably. Such an increase in prices would probably mean that the distribution



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companies would have to increase their charges over those rates presently in effect (or pending), particularly for the firm industrial class of service. Thus, for the 31-year period ending 1987-88 the market potential at prices reflecting the "cost of service" means a cumulative requirement for Alberta natural gas of 9.2 trillion cubic feet; on the published rate basis, the comparable requirement estimate is 10.9 trillion cubic feet.

Canadian sales of natural gas by TCPL could well be below either of the estimates tabulated above. Such a condition could be caused by realization of one or more of the following situations:

1. The economic framework used to make gas demand estimates in this study is that of the median projections of the Gordon Commission.

Independent projections of the economic development of eastern Canada made in this study are about 5 to 10 per cent below the Gordon Commission median forecast. If the economic development proceeds at the pace estimated by Economic Research Corporation and Stanford Research Institute, the over-all natural gas market development would be reduced by 5 to 10 per cent.
2. The cost of service was not reflected in the estimates of residential and commercial market



potential. The cost of service will, however, be reflected in residential prices, particularly in residential space heating. This may tend to deter the growth in natural gas markets for this use.

3. The price relationship of natural gas to other industrial fuels was determined from the prices paid by industrial establishments during 1957. The price of competitive industrial fuels has dropped 10 to 20 per cent in 1958, due to competitive supply conditions, and this level of prices could last for some time. The opening of the St. Lawrence Seaway will tend to reduce the price of heavy fuel oil in the Toronto area. Further, it is estimated that under competitive supply conditions in eastern Canada the price of heavy fuel oil would have to drop by more than 30 per cent (as compared with the price in 1957) before alternative means of disposing of the heavy products would be profitable. Thus natural gas may face more severe price competition for industrial fuel markets than was assumed in this study.



4. Fuller utilization of underground storage than that presently contracted for, and the possibility that pipeline capacity for deliveries to Union Gas Company may be reduced, could lower the interruptible requirements substantially. Also, no allowance has been made in the ERC-SRI estimates for manufactured gas production (Quebec Natural Gas Company is reportedly planning to continue operating part of its manufactured gas facilities indefinitely) or for the portion of the sales accounted for by peak-shaving gas. In addition, the production of natural gas in southwestern Ontario may be maintained above the conservative estimate assumed in this study.

Tables 1 and 2 give the ERC-SRI estimates of annual firm sales by TCPL. (The figures for sales to the Saskatchewan Power Corporation are those given in Exhibit 47. Sales to Union Gas Company are market estimates prepared by ERC-SRI with adjustments for other sources of gas supply. Estimates of the Union Gas Company requirements are given in Appendix A.) Table 1 shows the estimates by area; Table 2, provides a breakdown by type of use of each market area in Ontario and Quebec.

The comparison of the ERC-SRI estimates with those given in Exhibit 47 is shown in Table 3. The ERC-SRI cost of service estimate of cumulative



requirements of 560 billion cubic feet for the first five full years of operation (plus 1957-58) is 60 per cent of the 933.0 billion cubic feet estimate given in Exhibit 47. Based on published rates, the ERC-SRI estimate is 72 per cent of the Exhibit 47 estimate. For the 31-year period ending 1987-88, the TCPL requirement for Alberta gas for Canadian markets is 9.2 trillion cubic feet on the cost of service basis, or slightly less than half of the 18.8 trillion cubic feet estimate in Exhibit 47 (using published rates, the ERC-SRI estimate would be 58 per cent of that given in Exhibit 47).

Several criteria may be used to check the validity of the estimated natural gas potential. These criteria relate to historical experience in the development of natural gas markets, and include the position of natural gas in the total energy framework, natural gas industrial use as related to total industrial fuel consumption, and firm industrial natural gas consumption as a percentage of residential natural gas consumption. Using these criteria on the three sets of estimates given in Table 3, the set based on cost of service is the most consistent with historical experience in the comparable market areas where gas is being used.

MR. ARMSTRONG: If you will turn with me to Section 3, the Economic Framework, we will



dispense with this as quickly as possible.

Section 3 provides the economic population projection which forms the basis of energy forecasts produced later in this study. Let us consider first the population forecast. What we wanted ultimately was the number of people who were likely to become customers of Trans-Canada Pipe Lines.

This is obviously the function of the number of people in the Trans-Canada area which, in turn, depends on the growth of the population, population growth for Canada and its provinces. To cut a long story short, we ended up by accepting the mid-forecast of the Gordon Commission for Canada and the population growth, which we accepted for Ontario and Quebec and is in line with the Gordon Commission forecast, if we assume that the two central provinces retain their share of the total population -- and historically this seems to be a sound argument.

For reasons that will become apparent later, we have divided the Trans-Canada market area into four regions, to which I called attention when I was reading Part I. Historically, the three regions in Ontario have pretty well maintained their share of the total provincial population, and this meant that we could translate the population



forecast for the province into a population forecast for the different areas by simply breaking up the total provincial forecasts into the appropriate percentages.

The population forecasts that I have been talking about so far are those given in Table 4, which you will find on page 23 -- follows page 21; unfortunately the page number is not marked.

The figures are found under the heading "Total population". You will see that there is a total population column in Area 1, Area, Area 3 and Area 4. To the right of that column in each case, in each area, is another column headed "Population in Service Area". The numbers in those columns represent our estimate of the number of people likely to be in the Trans-Canada market area. You will see, if you examine this table, from looking at, say, Niagara, the central region, that we have assumed that most of the population in Ontario, in these two regions particularly, will be eventually in Trans-Canada service area.

We have assumed that in 1956 just about -- well, it is a little over 70 per cent of the population will be in that Trans-Canada service area, and because of a shift in population we expect this to grow to about 74 per cent by 1988. The Niagara region we have simply assumed that all urban population would eventually receive



natural gas, and this means that about 65 per cent of the population is in a service area. We expect this to increase to something over 68 per cent. Of course, ultimately the result may be achieved, but it will be some time before some of the smaller towns, and towns in the northern Niagara region, will receive gas.

As far as the northern region of Ontario is concerned, with its greater distances and wider spread of population, it is quite obvious that the penetration of the service area is going to be more restricted than in the other two regions. We have assumed that 38 per cent of the 1956 population in northern Ontario will be in a Trans-Canada Pipe Line service area, and because, again, of shifting population, we think this area will grow faster than the others, so we have assumed that this would increase to 43 per cent by 1988.

One other thing on the population estimate: we have estimated that through this report the number of persons per household will remain constant at 3.8. Authorities could be cited in both United States and Canada for the belief that the number of persons per household will actually increase, with the apparent trend of family size. We have taken the conservative estimate that the ratio of persons per household will remain constant.



So much for population. Economic framework, I think, can be dealt with very briefly. I can summarize our research here by saying that the economists at Economic Research, Reford Corporation and Stanford worked independently on economic forecasts, came to the conclusion independently that the mid-forecast of the Gordon Commission was about five to ten per cent too high, and then ended up by accepting the Gordon Commission forecast anyway. I would be less than candid if I did not admit that we accepted this forecast to avoid argument and to put this on a basis which would put the sale of natural gas in as favourable a light in Eastern Canada as possible.

The forecasts I have been talking about so far are the forecasts which relate to the total or the -- yes, to the total Canadian picture. We had regional forecasts and provincial forecasts by growth, assuming that Ontario and Quebec would maintain their present rate in so far as production is concerned, and certainly there is no historical reason for believing otherwise.

We turn now to Section 4, which gives our estimates of residential and commercial markets. The summary table given on page 40 presents our estimates of the sale of residential and commercial natural gas by market area. That area is probably, particularly at this point, of less



interest to the Commission and its staff than how we arrived at the figures in that table, and therefore of more interest is Table 8, which sets out the assumptions which we made to arrive at the forecasts of residential and commercial sales.

With your permission, sir, I am going to call on Mr. Clark, who will take us back to Appendix B in the report, which is page 205, and he will explain to us the analysis which went into the experience and development of markets for natural gas.

May I say, sir, that although we have relegated this section to an appendix, that is not to say that we consider it unimportant. Without this analysis of what happened in all markets, one could do no more than guess about such questions as what per cent of the population within the service area is likely to become customers of the gas distributing system, and what per cent are likely to use gas for heating, and so on. Mr. Clark will tell us how these questions were answered.

MR. CLARK: Before turning to Appendix B, Mr. Chairman, if I might I would like to continue to direct your attention to Table 8 on page 41. These are the factors used in estimating the residential and commercial gas markets, and applies to Ontario and Quebec. We have broken this down into four market areas. Area No. 1, Northern Ontario,

WMO

WMO

WMO

WMO

WMO

WMO

WMO

WMO

WMO



served by Northern Ontario Natural Gas Company;
Area No. 2, Niagara, covered by Union Gas Company;
Area No. 3, Central, is served by Consumers' Gas
Company, at least primarily; Area No. 4 is Montreal,
served by Montreal Natural Gas Company.

There are twelve columns to this table. Column 1 gives the number of dwelling units for the period 1958 to 1988. We have just discussed this.

Section 3, columns 2 through 5, apply to the residential base use, cooking, water heating, that type of use.

Columns 6 through 9 apply to space heating. Column 10 gives the total residential use. Columns 11 and 12 apply to commercial. Columns 2 and 6 are concerned with the saturation of base use and space heating respectively.

The "saturation" is defined as the number of customers for each type of use, divided by the total number of dwelling units. I would like to caution you that in our definition of "space heating saturation, column 6", we define this as the total number of space heat customers divided by the total number of dwelling units. Ordinarily, in many studies, it is defined as the total number of space heating customers divided by the total number of residential customers.

I would like, if I may, to turn to Appendix B, page 205. Table 52 provides data for 19 companies



on the development of residential base use and space heating saturation and on factors which might affect the growth in saturation. These areas were selected for various reasons, some to demonstrate a particular point, and others to bracket the conditions which exist in Eastern Canada at the present time. Only postwar conversions to natural gas have been considered because economic conditions prevailing prior to the war were so different from today. However, the current experience of several prewar conversion areas has been considered in order to check developments in the tenth to twentieth years of natural gas operation. Except in one instance where a particular point was being emphasized, all areas considered are those served by long-distance pipelines. Areas near the source of gas have operated on natural gas for many years (e.g. Alberta, California and Texas). Their early experience with natural gas was under conditions vastly different from those which exist today. Moreover, in areas near the source of gas this fuel has been priced for all uses significantly below the price for other fuels; this was particularly true ten to thirty years ago.

Coming to Table 52, the upper portion of this table is concerned with space heating, the top row gives the average annual increase in saturation for the first to fifth years of operation of natural



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gas in percentage point, average percentage point
increase.



You will notice as you run along this row of figures that by far the predominant experience is an increase of 3 percentage points per year. In those cases where the experience is less than that a 10-year average would give almost a 3 percentage point average. There are three cases where the experience exceeded this average, and in two of those cases there were unusual conditions which are not expected to exist in Eastern Canada. Basically these utilities had operated on mixed gas for many years before conversion to natural gas and had favourable gas prices for space heating at the start of conversion. Both had already developed considerably their space heat saturation, using mixed gas, but the supply of gas was undoubtedly limited and a sizeable backlog of potential space heat customers had been developed. In other words, it was as though conversion had taken place many years before and the demand for natural gas had been built up without a comparable build-up in supply.

The upper rows of the table apply to the factors which might be expected to have some influence on the growth of saturation, and these are the initial space heat saturation, the oil heating saturation, the price of oil as compared with the price of gas for space heating, the initial base saturation and the population growth rate.

Now, as to the base use saturation, the



upper row again gives the average annual increase in saturation expressed in percentage points for the first to fifth years operation of natural gas, and here the experience varies to some extent.

The increase in baseuse saturation for companies with less than 50 per cent initial saturation has varied between one and four percentage points per year. Most of these companies, however, have only one to three years of experience with natural gas. The average increase was 2.6 percentage points per year. For Toronto, which has the most directly applicable experience, the increase for three years with natural gas averaged two percentage points per year. Since the rate of growth of base use saturation for most of the northwest companies will probably decline, it can be expected that their average annual increase will drop to about two percentage points per year for the first five years of operation. It is quite possible that the ultimate saturation for these companies may be only 20 to 40 percent. Electric rates in the northwest, however, are lower than the rates in Eastern Canada. On the other hand, the rates in Eastern Canada are below those in the areas considered where the initial saturation was greater than 50 per cent.

It is therefore probable that the ultimate saturation in Eastern Canada will be somewhere in the range of 40 to 70 per cent.



In the rows below the top three are given the factors which might affect the base use saturation. These are initial saturation, electric cooking saturation, electric water heating saturation, and electric rates.

Turning back again to Table 8, on page 41, if we were to consider these four areas combined, then the growth of the base use saturation which we have used in this study for the first five years of operation is about 1.5 percentage points per year, and for space heating it is about 3.2 percentage points per year. This is generally in line with the predominant experience that we have just considered.

The saturation used for each of the areas varies to some extent. For area No. 1, we have used for base use and space heating an increase of about four percentage points per year for the first five years. This is in the upper ranges of any of the experience studied, and we have used relatively higher growth, first because there is a negligible initial saturation and, second, because of the electric cooking saturation and electric water heating saturation. In most of Northern Ontario the electric rates are somewhat higher than in some of the other areas studied with a low initial saturation. There is likely to be a more favourable gas price in this area than in the other market areas in Ontario and Quebec. One company studied has an increase in space



use and space heat saturation. This was a company serving small towns over the pipeline in Idaho. It had about 5 per cent increase in space heat saturation for the first year.

In area No. 2 we have used an increase of 2 percentage points per year for base use and 3.4 percentage points per year for space heating for the first five years, and this is in line with the experience of the Union Gas Company over the past three, four or five years.

In area No. 3, the Central area, we have used 1.2 percentage points per year for base use and 2.8 for space heating. Again, this is in line with the experience of Toronto Consumers' Gas Company over their past three or four years. Note that by 1958, 1959 or 1960 a large portion of this area will have been on natural gas for five years.

For Montreal, we have used for the base use 1 per cent increase, and for space heating 3.6. The relatively low rate of increase for base use is, first, because of the high initial base use saturation in this area and, second, because of the low electric rates and the expected competition from electricity. The relatively high increase in space heat saturation is because of the very low increase and the very low initial space heat saturation and, second, because of the large number of apartments in Montreal using more room heaters, which are likely



targets for gas conversion.

Dealing with the rest of these columns that are given here, columns 3 and 7 are the number of customers resulting from these saturations in the dwelling units. Columns 4 and 8 apply to the use per customer, the average use per customer in each area, and these are in line with the distribution company experience and estimates and the recent experience in some of the utilities, which was stated in Appendix B. Columns 5 and 9 give the total use. Column 10 is the result of adding these two columns, giving the total residential use. Column 11 gives the commercial use as a percentage of all residential sales. The experience of the companies studied indicated that, as the residential use built up, the commercial use as a percentage of residential sales gradually declined from an average of 22 per cent down to an average of between 15 and 20 per cent, down to a range of 15 to 20 per cent and an average of about 17 per cent. Column 12 gives the resulting commercial use. These totals are summarized, as has been pointed out already, in Table 7, giving the total residential and commercial natural gas market by area for the period studied.

MR. ARMSTRONG: As we have seen, the market for residential and commercial gas follows from a few simple measurements or assumptions. Let us review them. First, we had the assumption of the



service area and we assumed that by 1988 Trans-Canada Pipe Lines will serve 70 per cent of the population of Ontario and virtually all of the population in the Montreal region. That is, all the population of the Montreal region will be in the service area. On base use saturation, our estimate ranges from 62 per cent in the north region to 80 per cent in the Niagara region. As for space heating saturation the estimate ranges from 70 per cent in Montreal, as a percentage of the base use customers, to 100 per cent in the northern region. Having in mind the relative prices of fuel and oil that are likely, these seem reasonable assumptions. On the base use customers, there does not seem to be much discrepancy on the base use figures we have here. It is logical to assume that there is a connection between the amount a person uses in his home and the amount he uses in his place of business, and our estimate, going down to 17 per cent, seems to be in line with the experience elsewhere. That completes what we have to say about the residential and commercial market. Our next concern is the industrial market, but, as has been pointed out, the estimates which one obtains for a firm industrial market will depend primarily on the prices that one assumes. So, before getting into our estimate of the firm industrial market, it would be well, sir, with your permission, to call on Mr. Hough of Bechtel Corporation, who has made a study of the cost of



service of Trans-Canada Pipe Lines.

MR. HOUGH: Mr. Chairman, the text of the Bechtel report is quite brief. So, with your permission, I will simply read it. First, the letter of transmittal from Bechtel Corporation to Economic Research Corporation Limited of Montreal and the Stanford Research Institute, Menlo Park, California, is as follows:

"Gentlemen, at the request of Alberta and Souther Gas Co. Ltd., Bechtel Corporation has made a study of Trans-Canada Pipe Lines Limited's cost of providing natural gas service to eastern Canada, with particular reference to the cost of service to firm industrial users in that area.

The study is based on the loads that you have forecasted for the year 1962-63 and upon capital and operating cost estimates submitted by Trans-Canada to the Alberta Oil and Gas Conservation Board during the Alberta and Southern Hearings in Calgary in March 1958.

The estimated cost of firm service developed in the study for each of Trans-Canada's rate zones in eastern Canada exceeds by a substantial amount prices for that type of service, as shown in Trans-Canada's current rate schedule. Thus it appears that Trans-Canada must increase its rates for firm service if that company is to expand its business on a



sound commercial basis."

Having made that statement, Mr. Chairman, we would like the Commission to understand that, while our study indicates that some increases will be necessary and that consequently the sales of gas in eastern Canada will be reduced, we do firmly believe that there is a substantial market and a profitable market in eastern Canada with the existing capacity of the Trans-Canada facilities that are now under construction.

"The study was carried out under the direction of F.A. Hough, Chief Engineer of our Pipeline Division and has been reviewed by executives of our company. Very truly yours,
H.F. Waste, Vice-President."

Now, turning to page 59, this deals with the cost of natural gas service to eastern Canadian markets.

Introduction: The ERC-SRI market study clearly shows the important relationship between the price of gas to industrial users of fuel and the quantity of gas that industry can be expected to use. The great importance of this price-volume relationship makes it necessary to examine the basic cost of gas service to industrial customers in Eastern Canada to determine if the present filed rates are realistic and to get an understanding of whether they are likely to go up or go down after a reasonable time has been



allowed for development of the Eastern Canada industrial fuel market.

This section considers the costs to the pipeline company and to the distributing companies of serving two classes of industrial customers: Firm industrial customers and interruptible industrial customers.

The pipeline and distributing companies obligate themselves to serve firm customers at all times, including system peak-load periods. This means that sufficient transmission and distribution capacity must be provided to meet their demands. The cost of this capacity is a part of the cost of serving the firm industrial customers.



On the other hand, interruptible customers may be shut off at the option of the distributing companies during system peak-load periods. Their use of transmission and distribution facilities can therefore be limited to off-peak periods when the facilities would otherwise be idle.

It is assumed in this study that no capital expenditures will be made by Trans-Canada to provide capacity for interruptible loads. Consequently, capital costs of the Trans-Canada system will be unaffected whether or not interruptible load is supplied.

The "cost of service" to a class of customers, as used in this report, is the summation of those costs that are created by performing the service and which would not exist if the service were not performed. These are the real costs that must be considered in determining the economic feasibility of performing the service.

Included in these real costs is the return on the operating companies rate base necessary to keep the company in a sound financial condition.

The determination of these costs should not be confused with rate-making or pricing. Many considerations other than costs are sometimes involved in determining the price which a company



wishes to charge for a commodity or service. We believe, however, that in this case the best understanding of the long-term prospects for selling natural gas as an industrial fuel in Eastern Canada can be obtained by considering the real cost of rendering this service to industry.

The costs of service developed in this report are based for the most part on basic capital cost and operating cost estimates submitted by Trans-Canada to the Alberta Oil and Gas Conservation Board in March 1958. At that time Trans-Canada submitted capital cost estimates for their initial construction program and for a series of additions needed to provide sufficient capacity to supply the market estimated by Commonwealth Services.

A system has been selected for this study for which a design and cost estimate was submitted by Trans-Canada. This system has the delivery capacity needed to handle efficiently the load forecasted by ERC-SRI for the operating year 1962-63.

The only changes made in the Trans-Canada capital cost estimates are those required by the difference in the timing (year of construction) assumed by Trans-Canada and the timing used in this study, which is designed to meet the ERC-SFI forecast of load build-up.

Costs of service in this study have been computed for the year 1962-63 (Nov. 1 to Oct.



- 31). This year was selected because - -
- 1) By that time, Trans-Canada's initial development period will be over and normal operating conditions can be expected;
 - 2) The load forecasted for that year by ERC-SRI is large enough to load the Trans-Canada pipeline efficiently, and transmission costs should be at or near minimum values;
 - 3) Trans-Canada's gas requirements for that year are of particular interest as they have been pointed to by that Company as fixing its immediate requirements for gas purchase commitments in Alberta.

Alberta Gas Trunk Line Company's contract with Trans-Canada provides that after an initial development period Trunk Line's charges will be on the basis of cost of service. Consequently this cost of service study has been carried back to the delivery point in each field.

CONSLUSIONS:

1. The cost of firm gas service to the distributing companies in Eastern Canada in the year 1962-63 exceeds the revenue that will be produced by the present Trans-Canada Pipe Lines rates for that type of service.
2. It will be necessary for Trans-Canada to increase its rates materially for firm service in Eastern Canada. Otherwise its

earnings will not be sufficient to permit it to raise the capital that will be needed from time to time to increase pipeline capacity. This conclusion has been formed after giving full effect to the revenue expected by Trans-Canada from the export of 204 MMcfd of gas at Emerson.

3. The estimated cost of serving large firm industrial customers (taking 30,000 Mcf per month or more) for the years 1962-63 is tabulated below. The comparable Trans-Canada city gate rates are also given for comparison (see also Table 29).

Trans-Canada's Rate Zone	Trans-Canada's City Gate Rate (IF) 50% l.f. ¢/Mcf	Estimated Cost of Service Year 1962-63		
		To City Gate ¢/Mcf	Distribution ¢/Mcf	Total ¢/Mcf
Western	41.8	38.0	11.0	49.0
Northern	52.2	59.6	7.0	66.6
Central	54.2	71.8	25.0	96.8
Eastern	57.4	80.3	22.0	102.3

4. The large difference between Trans-Canada's rates and the estimated cost of service to the Northern, Central, and Eastern zones (see Conclusion 3) will create a deficiency in Trans-Canada's earnings that can be only partially offset by profitable operation in the Western zone. We believe it will be impracticable to shift a significant part of the cost of serving firm industrial



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customers in Eastern Canada to other classes of customers or to other geographic areas.

This means that rates for firm industrial service in Eastern Canada must closely approach the cost of service.

5. The sale of gas for interruptible industrial service at the rates proposed by Trans-Canada and the distributing utilities will be a profitable operation for all concerned. The full effect of these profits has been taken into account in computing the cost of service to firm industrial customers.
6. It appears improbable that the cost of Trans-Canada's firm gas service to Eastern Canada will go down in the future. Rather, it seems more probable that their cost of firm gas service will go up.

DESCRIPTION OF PIPELINE SYSTEMS:

Alberta Gas Trunk Line System - The Alberta Gas Trunk Line Company system upon which our cost estimates for that company are based is shown in Figure 4.

In developing this design we have had to make assumptions to provide for supplies of gas in addition to those presently contracted for by Trans-Canada. The costs for this system are thought to be adequate for any system that might be constructed by Trunk Line to supply Trans-Canada's needs in

1962-63.

Trans-Canada Pipe Lines Company System -

The Cost of service calculations are based on a single pipeline system from the Saskatchewan Gate to Montreal, with branches to Emerson, Manitoba, Niagara Falls, and Ottawa. The main line consist of

586 miles of 34-inch O.D.
1,248 miles of 30-inch
308 miles of 20-inch

The branch lines consist of

48 miles of 24-inch to Emerson
34 miles of 24-inch and 76 miles of
20-inch to Niagara
37 miles of 12-inch to Ottawa

The locations of all compressor stations and offtakes are shown in Table 9, which also shows the quantities of gas leaving the pipeline at those points. These quantities are the ones used by Trans-Canada in the design of the system. They do not necessarily agree in all cases with the loads forecasted by ERC-SRI for the year 1962-63. However, any differences in load distribution along the line will not significantly affect the cost of service calculations.

CAPITAL COST ESTIMATES: Table 10 presents the capital cost estimate for the Trans-Canada system. This is the Trans-Canada figure (see Table 24) with additions for escalation in costs of those facilities that we forecast will



be built at a later date than assumed by Trans-Canada.

It is anticipated in this study that Trans-Canada will purchase the Crown Corporation pipeline October 31, 1961, as was indicated in Trans-Canada's submission to the Alberta Oil and Gas Conservation Board.

The price to be paid for the pipeline is computed in accordance with the terms of the Agreement between Trans-Canada and the Crown Corporation. These calculations are shown in Table 11.

Capital cost estimates for the Alberta Gas Trunk Line system are given in Table 12.

OPERATING COSTS: Our estimates of Trans-Canada's operating costs are substantially the same as those submitted to Alberta Oil and Gas Conservation Board by Trans-Canada. See Table 18 for our estimates, and Table 25 for Trans-Canada's estimates.

FINANCING PLAN: It will be necessary for Trans-Canada to obtain 131 million dollars over and above the funds raised through their original financing and the depreciation accruals to purchase the Crown Corporation pipeline and provide the additional transmission capacity required during the 1962-63 operating year.

If this is to be done through public



financing it will be necessary for Trans-Canada to have:

- a) A reasonably good record of earnings per share of its common stock, and
- b) Good prospects for making an adequate return in the immediate future on its new enlarged rate base.

The financing plan given in Table 13 is for a 743 MMcfd pipeline and is based on the assumption that, by the time public financing is required, both a) and b) above will be true. It is further assumed that the new bonds will have the same interest rates as the present bonds (approximately 5-1/2%).

Table 14 shows that a 7-1/2% return on the depreciated rate base will produce adequate but certainly not excessive earnings per common share. It is believed that failure to make this rate of return will make further public financing difficult. For this reason a 7-1/2% return has been used in the cost of service calculations.

RATE BASE: Rate base calculations for the case under consideration are given in Table 15. See also the calculations by Trans-Canada, which are reproduced in Table 28.

COST OF SERVICE: The total annual cost of transmission for the year 1962-63 is estimated as follows:



Trans-Canada system (see Table 18)	\$65,483,000
Alberta Gas Trunk Line system (see Table 17)	<u>12,461,000</u>
Total:	\$77,944,000

We believe this to be a very solid figure, about which there cannot be much argument. This total cost should be allocated to reflect correctly the effect on cost of service of:

- a) distance from source of supply to point of use;
- b) class of use (firm or interruptible);
- c) load factor.

The cost allocations in this report rest on these basic assumptions:

- 1) The cost of serving firm customers that use gas or can demand gas during peak periods includes all the capital costs involved in providing the required capacity.
- 2) The cost of serving gas on an interruptible basis, where the service can be discontinued during peak periods, includes no part of the capital costs of the pipeline. This is because these costs are unaffected by whether or not the interruptible service is provided.
- 3) The cost per Mcf of transmitting gas to a given class of customers varies inversely as the load factor of the group.
- 4) The cost of transmission to a given point on a pipeline is directly proportional to the distance the gas is hauled.



Assumption number 4 is equivalent to saying that the unit of transmission cost is the Mcf-mile. This is strictly true for a long pipeline of one diameter, but in general the cost per Mcf-mile will be higher for small-diameter pipelines than for large-diameter pipelines. Consequently, in the Trans-Canada pipeline, this assumption tends to overstate the cost of delivering gas to points close to the source of supply and to understate the cost of delivering gas to points near the eastern end of the pipeline. No effort has been made in this study to compensate for this error.

The cost of service calculations involve the following steps:

- 1) Calculation of the total annual cost of owning and operating the pipeline.
- 2) Calculation of the average cost of transmission per Mcf transmitted, assuming the pipeline operates at 100% load factor.
- 3) Determination of the weighted average distance over which gas in the pipeline is hauled.
- 4) Calculation of the cost per Mcf-mile for 100% load factor.
- 5) Calculation of cost per Mcf-mile for various load factors.
- 6) Calculation of cost per Mcf of transmitting gas to various points on the

pipeline at various load factors.

- 7) Calculation of the credit to be applied to firm service costs generated by the sale of interruptible gas.

These calculations are shown in Tables 18 through 22.

Distribution Costs - No attempt has been made in this study to make a detailed analysis of distribution costs. However, a good indication of these costs is the spread between the price by the distributing company for gas at the city gate and the price which the distributor proposes to charge. Here are a few cases that indicate the cost of distributing gas to firm industrial customers:

	Price Paid by Industrial Customer <u>c/Mcf</u>	Price Paid by Distributor <u>c/Mcf</u>	Difference <u>c/Mcf</u>
1. <u>Northern Ontario Natural Gas Company</u>			
<u>Northern Rate Zone</u>			
1 MMcf per month at 40-70% l.f.	68	51	17
30 MMcf per month at 40-70% l.f.	58	51	7
<u>Western Rate Zone</u>			
1 MMcf per month at 40-70% l.f.	58	41	17
30 MMcf per month at 40-70% l.f.	52	41	11



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Continued.

	Price Paid by Industrial Customer <u>c/Mcf</u>	Price Paid by Distributor <u>c/Mcf</u>	Difference <u>c/Mcf</u>
<u>2. Union Gas</u>			
1 MMcf per month	92	53 ¹ / ₂	39
30 MMcf per month	74	53 ¹ / ₂	21
<u>3. Consumer's Gas</u>			
1 MMcf per month at 50% l.f.	120	53	67
30 MMcf per month at 50% l.f.	82	53	29
<u>4. Quebec Natural Gas</u>			
1 MMcf per month	130	56	74
30 MMcf per month	78	56	22

(1/ - Union currently has contracted to buy only off-peak gas from Trans-Canada at a price of 39c/Mcf. The price quoted is the Trans-Canada rate for firm gas.)

Costs Trends Affecting Cost of Service

beyond 1962-63 - The forecasted growth of gas load in Eastern Canada will require substantial additions to the Trans-Canada system from time to time. These additions, coupled with the upward trend of construction costs (about 5 per cent per year) will tend to offset depreciation accruals and possibly create an increasing rate base.

Increasing gas prices in the field and the rising cost of operating labor will also tend to produce higher costs of service as time goes on.

In the United States, for most if not all cases involving growing companies, the net effect of these factors has been a continuously increasing city gate cost of gas.



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The distribution systems will also need to be continuously extended and portions of the existing distribution facilities will have to be replaced because of deterioration or inadequacy. This will tend to create an upward trend in distribution costs.

These observations lead to the conclusion that firm industrial gas rates will tend to go up rather than down during the years beyond 1962-63.

--- A short recess.



THE CHAIRMAN: Gentlemen, the Commission will now resume. Mr. MacKimmie?

MR. MacKIMMIE: Thank you, Mr. Chairman, Dr. Armstrong?

MR. ARMSTRONG: Gentlemen, we would like to carry on with our analysis of firm industrial, which starts on page 109 of the report. The procedures which we used to analyse the firm are set out on page 119. Perhaps I could shorten this even further by saying that the market for industrial gas depends on two things: first of all, the size of the total market for industrial fuels, and second, the share of the market which gas can capture.

The size of the market in terms of billions of cubic feet for natural gas equivalent, you will find on page 113. The details are given on pages 34 and 35. You will find two provincial breakdowns there. It will probably be of more interest to the Commission to find out how these numbers were arrived at than to look at the numbers themselves, at least at this point.

In order to present the story of how the first estimate was made, that is, how we estimated the size of the total markets for industrial fuels, I am going to call on Mr. Clark, with your permission, who will take us back to section 8 to explain the energy framework which is the basis for the



forecast of energy requirements.

MR. CLARK: Turning to page 145, Mr.
Chairman:

"This section on the energy framework of Ontario and Quebec has been included to show the position which natural gas is expected to have in the energy consumption of eastern Canada and to demonstrate the impact of natural gas on other sources of energy. It is, in a sense, a check on the validity of the estimates as well as a consideration of competitive factors in the industrial fuel market.

"Although natural gas does not compete as a transportation fuel, an analysis of transportation energy consumption is included in order to arrive at estimates of the total consumption of petroleum products. From these estimates the impact on probable refinery operations can be shown.

"Other segments of the energy framework in which natural gas does not compete are coal for coke and gas production, hydro-electricity, and fuel input to thermal electric plants. It is generally agreed that coal is the most competitive fuel for use in thermal electric plants in Ontario and Quebec. For simplicity, these categories



as well as hydroelectric power production, are excluded from this analysis."

It might be added that the reason thermal power has been excluded as a potential market for natural gas is apparent from the fact that thermal power plants in Ontario paid about 32 cents per Mcf equivalent last year, while the lowest gas price is presently about 40 cents on an interruptible basis.

Now, sir, I would like to direct your attention to page 169 and consider more specifically industrial framework. We have prepared a history of industrial fuel consumption in Ontario and Quebec for the period 1948 to 1957. The projected consumption is based upon a correlation with the net value added by Manufacturing by province as given in Section 3, "Economic Framework".

In this tabulation in the middle of page 169 we have given some data on manufacturing activity, rate of growth, and increase in industrial fuel consumption. You will note that in Ontario for the period 1948 to 1957 manufacturing increased at a rate of 5.3 per cent per year; that industrial fuel consumption increased at a rate of 4.4 per cent per year. For the total period, from 1948 through our projection period to 1988; the projected increased manufacturing activity at 4.6 per cent per year, and an increase of industrial



fuel consumption at 3.5 per cent per year.

Since Ontario and Quebec industrial activity has been growing at about the same rate as Canada's, we have looked at the longer series for Canada. For the period '26 to '53 manufacturing fuel consumption in Canada was growing at the rate of 3 to 3.5 per cent per year, which projection is based in about the same range as that which Canada has been experiencing for about thirty years.

The correlation of industrial fuel consumption with manufacturing activity shows that as manufacturing doubles, industrial fuel consumption increases 70 per cent for both Ontario and Quebec. Actual experience for the period 1948-1957 varies from this average due to variations in the actual conditions in 1948 and 1957 as compared with average conditions which would be expected from the trend. Increased efficiency in fuel use is the primary reason for a less rapid growth in fuel consumption than in manufacturing. While mechanization and automation of industrial activities tend to increase the energy requirements per unit of output, these developments are reflected in the use of electricity rather than in the use of industrial fuel. In the United States industrial fuel consumption has also increased more slowly than industrial production."



The fuel consumption picture considered is to a large extent fuel for space heating in our manufacturing plants. It is reasonably expected that that use would grow more slowly than manufacturing output. If I might, sir, I would like to direct your attention to the graph on the following page which shows estimates of fuel consumption for industrial purposes in Ontario by type of fuel.

You may note that for the period from 1954 to 1957 fuel consumption for industrial purposes has been increasing at a very rapid rate; much more rapid than the average overall long-term trend. If this experience were to be extrapolated even, say, to 1988, the total industrial fuel consumption arrived at by that method would be very much higher than the estimate we have used. In fact, even for the short-term period, even for 1963, the results from this method would be approximately one-third higher than that which we have arrived at using the long-term trend.

This, incidentally, is Figure 10. Figure 11 is the same data on the following page, only it is for Quebec, and you will note that the history there for the period 1953 to 1957 is even more striking than that for Ontario.

An extrapolation of that experience to 1963 would yield a fuel consumption for industrial



purposes approximately twice that which we have derived on the long-term trend.

Turning back to the first table in this section, which is Table 44, following page 145, there is given the historical data for the period 1948 to 1957 by type of use and by type of fuel. The data which are concerned with on industrial is given under "Industrial", and then the answer "Other industrial". Thus, for 1948 for Ontario, Industrial consumption was 190 billion cubic feet for natural gas equivalent. By 1957 it was 279 billion. There is estimated to be some decline for 1958 and our projection for 1988 is 760 billion cubic feet.

Table 46, the table after the next one, Table 45, gives us the same data but by type of fuel, and then for future use.

Table 46 gives the same data as Table 44, only for Quebec.

MR. ARMSTRONG: We now have the story before us, of how the forecasts for total consumption of fuel in the year we are considering were arrived at. All which remains to estimate is the percentage of this market which natural gas would like to capture.

The main outline of our procedure is quite simple. From DBS we knew the quantity of fuel consumed in Ontario and Quebec. We did not



know two things: we did not know how this fuel was consumed, or broken down among the areas that we were considering; and, secondly, we did not know the prices paid for this fuel. We did not know the price-quantity relationship. Note that I say "price-quantity relationship" because there is not, of course, a price for fuel, even the same kind of fuel, in the same area. The price that you pay depends on, among other things, the quantity which you consume, so therefore we had to establish this hierarchy or complex price-quantity relationship.

Now, solving the first problem, that is the breakdown of consumption by area, was quite simple. The Dominion Bureau of Statistics publishes a series of fuel and electrical bills by counties, and we used this as a logical basis for prorating fuel consumption to the various regions in which we were interested.

Solving the second problem, that is, establishing the price-quantity relationship in each market, required that we send out a team, actually a couple of teams, of people to interview companies to find out what fuels they consumed, in what quantities, and what price they paid.

When the replies were in -- you will see that we interviewed about, just over, 500 companies in Ontario and Quebec -- when these replies were



in we translated the information -- we transferred the information into equivalent natural gas. For example, if company X reported to us that they consumed 1,000 barrels of heavy fuel oil we recorded this information as 6,000 Mcf equivalent of heavy fuel oil, at, let us say, a price of \$4 a barrel. This would become 67 cents per Mcf equivalent. This information was recorded on a work sheet, I think to help visualize this, to visualize the procedure, if you will turn to page 36 you will see something which looks rather like our first work sheet. The first table on page -- sorry, page 119. It is page 119, table 36.



Our work sheet, instead of having 30 cents and over, and so on, on the top column, at discreet price intervals, we have 48.9 and so on. The left-hand column is exactly as you see it there, the classification is according to the quantity consumed, Class 1, 2 and 3, and this refers to the quantity of fuel consumed by each firm. You will see the definition of these classes at the bottom. You can see why we have done this -- because different classes of users will be able to buy gas at different prices. You can see the information we obtained from Company 'X' was put in one of the squares in this Table. 67 cents is between 65 and 70, heavy fuel oil, and the quantity would define that company as a Class 1 user. After all this was in and we translated it into Mcf equivalents we had the price-quantity relationship with the companies we interviewed, and we had work sheets of the three years involved. These work sheets constituted what, in the language of the statisticians, was a sample of the total fuel consumption of that area, and our next job was, of course, to blow up or enlarge this sample so that the quantity accounted for in the work sheet would relate to the quantity of fuel as returned by the Bureau of Statistics. Our next job was to enlarge this sample -- let me say that we think our samples were reasonable. Our interviews accounted for almost 50 per cent of the



fuel consumed in Ontario and Quebec.

Now, the next step in the analysis was to work from that work sheet which I have described towards Table 36. All we did was, instead of presenting the amounts in the Table as quantity, we expressed them as per cent of the total amount of that fuel. In other words, if we had 6,000 Mcf, we divided that figure into total consumption, and instead of getting a quantity we got a per cent, and here essentially we have the table as it is before you. The advantage of putting it before you like this will be obvious as we go on.

Let's assume that the gas distributors in this area agreed to sell gas at, say, 80 cents per Mcf in any quantity. You can see that there isn't any coal consumed at a price of 80 cents or over. We made the percentages cumulative to make the calculation easier, and so presumably no coal would be captured. An 80-cent price would capture the heavy fuel oil market, and, of course, there is 76.2 per cent of the middle of the barrel consumption at a price of 80 cents and over. To relax this hypothetical case, no distributing company stands ready to sell gas to all consumers at the same price as regards quantity. We calculated that in this territory the Class 1 fuel user would pay about 80 cents per Mcf for his firm industrial fuel, a Class 2 fuel user would pay about 89 cents, and a Class 3 user would



pay about 25 cents. Now, with those prices in mind, you can calculate quite easily what percent of coal, heavy fuel oil and middle of the barrel market can be captured on a price per BTU basis. We have had this calculation for Area 3 and Area 4, Central Ontario and the Quebec area. When we came to the northern region we had a very small number of large firms. It therefore seemed better -- we had virtually the whole universe, and we had a direct survey there, asking each firm what percentage of their consumption of fuel they expected to convert to natural gas. Now, we got replies from these firms which were below the results which we would have obtained had we used the straight price consideration. In other words, these firms would convert less to natural gas than would be indicated just on a price basis, and this would indicate that our method of calculating gas consumption in other markets might be a little high. Well, we in that way were able to estimate the percentage of total fuel consumption in each market capturable by gas on a price basis.

Now, for forecasting we projected this into the future, that is we took the sum percentage of all future consumption. Now, the logical advantage rest only on the assumption that the relationship between the price of gas and the price of competing fuels will remain constant. Here is a valid method



of forecasting the share of the captured market, bearing in mind that the price of gas and other fuels would remain constant.

THE CHAIRMAN: Would you agree to the proposition that that is true provided that your statisticians are as good salesman as Trans-Canada's?

MR. ARMSTRONG: We will have to wait several years, I suppose, to answer that question.

Well, sir, there is the technique which we used for forecasting the share of the market which is likely to be captured by firm industrial gas. I might say that a little later we are going to come back and apply some tests to the estimates we have obtained.

Now, carrying on with industrial, I am going to call, sir, with your permission, on Mr. Clark who will tell us how the estimate was made for interruptible industrial sales in the future.

MR. CLARK: I would like to direct your attention to Section 7, starting on page 133. This section of the report describes the method of calculating the interruptible industrial markets for natural gas. The transmission pipelines are designed for peak-day delivery requirements. This peak is calculated from peak-day firm sales.

The amount of gas available during the year over and above firm sales has been determined as follows:



1. Peak-day delivery requirements to Manitoba, Ontario, and Quebec, exclusive of Union Gas Company requirements, were determined using the firm loads developed by ERC-SRI as a basis. These peak-day requirements are based on an 80-percent load factor for residential base use, and a 75-percent load factor for commercial base use. The heating load factor is 45 percent, which is equivalent to a design based on the average day requirements of the peak month. It has been assumed that distribution companies' peaking facilities would handle gas requirements for days colder than the average day in the peak month. The industrial load factor for peak-day calculations was 65 percent. As determined by the ERC-SRI industrial survey, this is the average load factor of the industrial fuel consumption at prices above 70 cents per Mcf equivalent.

2. After the peak day was determined for the areas described in (1), the average daily delivery requirements for Saskatchewan Power Corporation and Union Gas Company were added. Union's requirements were based on the average day for the winter period, during which, because of the company's underground storage, a lower delivery rate is maintained than in the summer.

3. Using the peak-day requirement determined in (2), the total annual delivery capability of the line was estimated at 92 percent for that portion



of the load other than Saskatchewan Power Corporation and Union Gas Company (which were considered to have a load factor of 100 per cent). The overall TCPL load factor for all Canadian deliveries thus approaches 93 per cent.

4. From the total annual capability of the line, as determined in (3), the Union Gas Company annual load (based on the winter-day delivery rate) and the Saskatchewan Power Corporation annual load were subtracted. The remaining volume equals the total firm and off-peak annual delivery to the remainder of the eastern Canadian market. From this volume the firm requirements were subtracted, leaving the gas required on an interruptible basis to maintain a 92-per cent load factor on this portion of the pipeline. (The volume of gas required to maintain a 92-per cent load factor on the pipeline can be allocated by areas inasmuch as it is determined by the firm load in each area.)

These calculations are shown in Table 42. Columns 1 through 6 give the total firm market (by type of use) for TCPL, excluding the Union Gas Company and Saskatchewan Power Corporation. (The assumed requirements for Manitoba are included in columns 1 to 6.) In columns 7 to 14 these estimates of annual firm load are converted to maximum day load by type of use. In column 15 the distribution company use and losses are listed, estimated at 5



per cent of the total peak-day sales. Column 16 lists the total maximum day load (equal to the average day requirements of the peak month) for all Canadian TCPL market areas except Union and Saskatchewan.

Column 17 gives the Saskatchewan requirements based upon that corporation's contract with TCPL, and column 18 lists the Union Gas Company average day sales during the winter months. For the latter, TCPL's daily delivery obligation to Union Gas Company at the winter rate has been used for design purposes. Column 19 adds the requirements of Saskatchewan and Union Gas Company to those of the other market areas, giving the total TCPL maximum day Canadian requirements.

Columns 20 to 25 again list annual sales -- column 20, sales to Saskatchewan, and column 21, sales to Union Gas Company based upon ERC-SRI estimates of the market in this area less other sources of gas. Column 22 gives the total annual TCPL delivery capability at 92-percent load factor for the areas excluding Union and Saskatchewan, plus capacity at 100-percent load factor for the latter. In column 23 Saskatchewan and Union sales are subtracted from the total TCPL annual delivery capacity. The additional gas deliveries required to maintain a 92-percent load factor are then given in column 25 by subtracting the total firm requirements given in column 24 from the total capacity



given in column 23.

In Table 43 the interruptible potential is estimated by market area and adjustment is made for deliveries to underground storage for the Consumers' Gas Company and the summer deliveries to Union Gas Company which are in excess of the deliveries calculated at winter delivery rates.

Columns 1, 2, and 3 are the same as the last three columns of Table 42, and columns 4, 5, and 6 break down the additional delivery requirements by market area. Column 7 lists the summer deliveries to the underground storage for which Consumers' Gas Company has contracted with Ontario Natural Gas Storage and Pipelines Limited. It is assumed that these deliveries will reach the maximum contracted for by 1961-62, and that deliveries will be held at the level of 7.5 billion cubic feet thereafter. Considering the large potential storage which the storage company will ultimately have available from depleted natural gas fields in southwestern Ontario, it can be expected that subsequent to 1961-62 additional storage may be available to Consumers' Gas Company.

Column 8 of Table 43 lists the excess summer deliveries to Union Gas Company. Capacity to serve Union Gas Company is provided at the average delivery rate for the winter months as provided for in the contract between TCPL and Union.



During the summer months delivery to underground storage for Union Gas Company is at a higher daily rate. Column 8 lists the summer deliveries which are in excess of the deliverability as calculated from the pipeline capacity assigned to Union.

Column 9 is the estimated interruptible gas requirements for Areas 1 and 3 (Northern and Central Ontario). This represents their total off-peak gas requirements less deliveries to storage for Consumers' and Union. Column 10 is the net interruptible requirement for TCPL to maintain a 92-percent load factor.

The estimate in column 10 should be considered a maximum requirement for interruptible gas. Three deductions from this total are possible. The first involves the underground storage capacity leased by Consumers' Gas Company. ERC-SRI took no credit for this storage against the maximum day in the pipeline design calculations, since the use intended for this gas is not known. A credit of 7.5 billion cubic feet was taken against annual pipeline capacity after 1961, because it is believed this would be the minimum amount the pipeline capacity would be diminished. A credit of about 20 million cubic feet against the peak day would equal the annual credit of 7.5 billion taken by ERC-SRI. It could be assumed that Consumers' will use the storage gas for extreme peaks; assuming a



deliverability of 125 million cubic feet/day, this would use only about one-third of total capacity at most, since only 22 days per year are normally colder than the average day of the peak month. A more economical use of the storage capacity would be to provide other peak-shaving facilities for extreme peaks and to use the underground storage for lower winter requirements, which would mean withdrawal over a period of more than two months. In this case, TCPL pipeline capacity to serve Consumers' would be reduced significantly, with a consequent reduction in available off-peak gas.

A second possible deduction from the total interruptible requirements given in column 10 of Table 43 is in connection with deliveries to Union Gas Company. The contract with Union is such that the deliveries for the winter period would total a specific amount. However, no minimum daily delivery is required. Thus, for days of peak withdrawals on the pipeline, deliveries to Union Gas Company can be partially or completely curtailed. Further, the price paid by Union Gas Company for the gas it receives from TCPL is at an off-peak rate. It is therefore subject to question that pipeline capacity should be provided for deliveries to Union. If capacity is not provided a further substantial reduction in the total interruptible requirements would be effected. If capacity is not provided,



however, the deliveries to Union during off-peak periods would reduce the pipeline capacity for service to interruptible customers in other market areas. This would limit the load factor at which other distribution companies could operate and would reduce the load factor to as low as 75 per cent. The distribution companies can probably operate at a higher load factor in the early years because the market for interruptible gas at the quoted prices will be substantial. In later years, when interruptible sales are limited by the potential interruptible load available, a 75-percent load factor for several of the distribution companies is realistic.

A third deduction from the interruptible requirements stems from a reduction in the firm load. As shown in Section VI, the cost of service of TCPL will result in firm industrial rates which are higher than those used to calculate the firm industrial market potential for natural gas. If the rates reflect the cost of service which will be necessary before TCPL can arrange for further financing, then the firm industrial market would be reduced by 50 to 70 percent. This in turn would lower the interruptible requirements by 11 billion cubic feet in 1962-63 and almost 40 billion cubic feet in 1987-88.

This would result in an interruptible requirement of 38 billion cubic feet in 1962-63.



By means of the other two deductions, further reduction is possible. Perhaps a realistic level for interruptible sales could be stated as twenty to thirty billion cubic feet for the same year.

MR. ARMSTRONG: Now we come to the final section. If we can talk as quickly as good salesmen are supposed to, we should be able to finish by noon. This is not to say that we can talk as quickly as Trans-Canada.

The comparisons which have been made for firm sales are set out for your convenience in Table 51, on page 191, that is, following page 189 -- again, it is not marked. We have pointed out, and it will be evident from the table, there are substantial differences in the estimates appearing in this report and the estimates appearing in the Trans-Canada Pipe Lines' submission to this Commission. The Commission is probably more interested in the differences in these estimates than in the estimates themselves, and therefore I would like to spend a little time outlining some of the reasons for the differences in residential and commercial markets, and then I am going to call on Mr. Clark to do the same for the industrial markets.

If you will turn with me to page 194 and examine the table that is set out, you will find some of the factors set out which go to account



for the difference between our estimate and that of Trans-Canada Pipe Line. You will note that the use per customer and the saturation figures are roughly in line. Take, for example, base use saturation. There is not too much difference. In space heating saturation we assumed almost 49 per cent. Trans-Canada Pipe Lines' estimate assumes 52 per cent. The big difference is obviously the population. If you divide our estimates into Trans-Canada Pipe Lines' estimates you will find the discrepancy in dwelling units is larger than the discrepancy in the population. This is accounted for by the fact that we assumed a constant figure of 3.8 persons over the forecast, whereas Exhibit 47 assumed a decline in the number of persons per household. We have already discussed that. This brings us back to population. Just looking at those two figures, I have made a few calculations which I believe will put them in their proper perspective. Exhibit 47 showed that in 1956 there would be about five million people in the Trans-Canada Pipe Line market area. Now, the breakdown is that these people were distributed among Ontario, Manitoba and Quebec. We find that about 56 per cent of these 5 million people were in Ontario outside the Niagara region but within the Trans-Canada Pipe Line market area. If we assume that all the areas go together, that is, Manitoba, Ontario and Quebec,



go more or less at the same rate, it seems reasonable then that implicit in this forecast of 12.4 million that you see at the top of page 194 is the assumption that 56.4 per cent of this figure will be in the Ontario market area outside Niagara, the marketing area of Trans-Canada, and this works out at just about seven million people. Let us look at the Niagara Peninsula. There are 1.6 million people in the peninsula, and if it grows in the way the rest of the province is expected to grow, by 1988 it should have about 3.1 million people in it. We have accounted for seven million in the Trans-Canada Pipe Line market area outside the Niagara Peninsula. With 3.1 million people in the Niagara Peninsula, it adds up to just over 10.1 million people in Ontario, in these two districts.

According to the mid-forecast of the Gordon Commission, we can expect a population in Ontario of about 10.5 million people in 1988. This means, of course, that implicit in this forecast is the assumption that there will only be between 300,000 and 400,000 people outside the Trans-Canada Pipe Lines' market area outside the Niagara Peninsula in Ontario. If you carried this on for another ten years, I think you could prove statistically that there would be more people in the Trans-Canada Pipe Lines' market area in Ontario than there is in the



Province of Ontario. I believe the forecast population is out of line with what we can reasonably expect, based on the mid-forecast of the Gordon Commission.

Now, as another check on the residential and commercial estimates, we have tried to fit the forecast of the Trans-Canada Pipe Lines' submission into the energy requirements and the energy framework which was presented just a few minutes ago to you. The table is given at the top of page 198. In effect, we have fitted in natural gas estimates in the Trans-Canada Pipe Lines' submission into the total requirements of residential and commercial requirements of the two provinces, Ontario and Quebec. You will see that coal is declining -- we have assumed it is going to decline -- and wood is going to decline. The petroleum fuels therefore will be the residual fuel used in this area. If the Trans-Canada Pipe Lines' assumption is right, this would mean that there would be a negligible increase in the use of oil and that natural gas would capture almost 20 per cent of the market by 1963 and 50 per cent of the total market in all of Ontario and Quebec by 1988. Of course, if we are to confine this analysis just to the Trans-Canada Pipe Lines' market area, it means that there would be a considerable displacement of oil, that gas would capture 33 per cent



of the market by 1963 and almost 90 per cent of the requirements of the market area by 1988.

This, as I say, assumes a considerable decline in oil sales in this area and that by 1988 the oil sales in the Trans-Canada Pipe Lines' market area would be negligible.

I am going to turn to Mr. Clark, who will try to make a comparison for industrial sales.

MR. CLARK: If I may, I would like to discuss quickly six of the subjects concerning the reasonableness of the industrial estimates. The first applies to the firm industrial, as to the data and methods used in estimating this category of use. The second applies to the firm industrial expressed as a percentage of residential sales. The third, total industrial as a percentage of total sales; and the fourth, the total gas industrial sales in relationship to total industrial fuel requirements; the fifth, the impact of the estimates on refinery operations; and the sixth, industrial fuel price assumptions and their impact on the estimates.

First, may I direct your attention to page 193, the middle of the page. There is a tabulation comparing the firm industrial, Exhibit 47, with those estimates given in the study. That shows that in 1963 the firm industrial estimate, using cost of service, is only about 25 per cent



of the Exhibit 47 estimate. By 1987-88 it is only about 10 per cent. This is apparently the greatest area of difference in the estimates.

Turning now to page 195, at the bottom of the page, we see that for the first few years of pipe line operation the difference appears to stem primarily from the prices of competitive fuels. While Exhibit 47 does not give the basis for the estimates, some of the data were made available in the hearings of the Alberta Oil and Gas Conservation Board, and these would indicate that the prices of industrial fuel as determined by the Commonwealth Services survey were substantially higher than those determined by the ERC-SRI survey of industrial consumers. Commonwealth Services estimated that all industrial fuel use above 76 cents per Mcf equivalent would be potentially capturable by firm industrial gas. They felt that approximately half of the potential would be light fuel oil and approximately half heavy fuel oil. Their survey indicated that the prices for light fuel oil in Montreal ranged from about 90 cents to \$1.77 per Mcf of natural gas equivalent. In contrast, the data from the ERC-SRI survey indicated that virtually no heavy fuel oil was consumed at a price above 76 cents per Mcf and that less than 40 per cent of the light fuel oil was priced above 90 cents.



Further, the price at which natural gas is being offered for industrial use varies with the magnitude of the load. Much of the heavy fuel oil and light fuel oil consumption at the higher prices is by industrial establishments with a small fuel consumption; the rates at which natural gas is being offered to these small consumers are in many cases above \$1 per Mcf equivalent. There is, however, only a small percentage of the industrial fuel consumption at prices above \$1 per Mcf equivalent. The only fuel used at this price is light fuel oil, and only a small percentage of this fuel is consumed above this price. This is consistent with the fact that furnace oil for residential use has been priced at a maximum of \$1.17 per Mcf equivalent for the first half of 1957, which should be a ceiling for industrial fuel use.

The ERC-SRI analysis indicates that except in Northern Ontario the displacement of a portion of the M.O.B. consumption accounts for virtually all of the potential market for natural gas.

I might add that the M.O.B. (middle of the barrel) refers not only to furnace oil but to kerosene and the other like products which are used for industry.

Much of the M.O.B. market probably will not be displaced because a portion of the consumption



is at prices below the firm industrial price for natural gas, and an additional portion is by establishments with such a low annual use that the natural gas rates will be substantially above the price paid for M.O.B.

The projections of firm industrial gas potential prepared by ERC-SRI are made within the framework of total industrial fuel requirements by type of fuel. The projections of the firm industrial natural gas market shown in Exhibit 47 were based upon the experience of the industrial establishments surveyed; the average rate of growth of their fuel consumption over the past five years was extrapolated for the projection period. So far as can be ascertained, no effort was made to determine over-all industrial fuel consumption in each market area, nor were projections made of this total based upon the probable growth of manufacturing activity.

Due to the rapid growth of fuel consumption between 1953 and 1957, an extrapolation of this situation could lead to a serious over-statement of the potential market in a very few years.

If I may, sir, I would like to direct your attention now to page 212, which is in the Appendix, to discuss the second subject, the firm industrial expressed as a percentage of residential sales.



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Firm Industrial Market: According to the unpublished statistics of the American Gas Association for 1956, firm industrial sales were 22 per cent of residential and commercial gas sales in New England, 51 per cent of residential and commercial sales in the East, and 34 per cent in the Middle West.

The tabulation in the middle of page 212 applies to the companies which have been considered and the data provided in table 52. For these companies the highest ratio was 47 per cent, the average for all companies is 22 per cent. Only one is less than 10, and three more than 30. These are in general agreement with those stated above for broad regions except for the East. In this 10 State area, several States do not permit interruptible industrial sales; as a result, firm industrial sales are inordinately high in these States. Thus, for areas served by long distance pipe lines, firm industrial at a per cent of residential sales can be expected to fall in the range of 20 to 40 per cent.

On the case of service basis, the estimates in this study of firm industrial are 20 to 30 per cent of residential sales for the estimates in Exhibit 47. Firm industrial is about 100 per cent. That is equal in size to the residential sales. This is far above any experience cited.

On the third point, total industrial



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as a percentage of residential, total industrial sales as a percentage of total gas sales in 1956 were 20 per cent in New England and 36 per cent in the Middle Atlantic States. The tabulation above also shows that total industrial sales as a percentage of total gas sales varied between 13 and 68 per cent, with an average of 29 per cent. For areas served by long-distance pipelines, a range of 20 to 40 per cent can be expected.

In the case of service basis, the estimate of this study of total industrial sales is 35 per cent of total sales. The estimates given in Exhibit 47 show two thirds of the sales are industrial. This is well above expectations for areas served by long distance pipe lines.

If industrial gas sales are considered as a percentage of the total industrial fuel requirements (excluding coke and fuel import to thermal electric plants), United States experience in 1954 was 6 per cent in New England, 9 per cent in the Middle Atlantic States, and 22 per cent in the East North Central States. (Experience in 1954, based upon data in Gas Facts, American Gas Association; Consumption of Fuel for Production of Electric Energy, 1954, Federal Power Commission; and Fuels and Electric Energy Consumed, Bulletin MC-208, 1954 Census of Manufactures, U.S. Department of Commerce, Bureau of the Census.) In contrast,



gas serves 66 per cent of the industrial market in California and probably 90 per cent in Texas. This demonstrates that the farther the market area is from the source of gas, the less competitive gas becomes in the industrial fuel market.

Now I would like to direct your attention to page 197, first as to interruptible sales: The smaller volume of gas available for interruptible sales obtained in this study is mainly the result of the smaller firm load forecast in this study. The methods we have explained before are somewhat different but yield approximately the same results.

Following is a discussion of the impact of natural gas for industrial use on all forms of fuel. Page 198 the natural gas industrial sales for Ontario and Quebec given in Exhibit 47 are approximately 131 billion cubic feet for 1962 and 1963; 665 billion cubic feet in 1987 and 1988. We presented on the bottom of page 198 a tabulation showing the pattern of industrial fuel consumption, using these estimates of natural gas industrial consumption and the estimates prepared for this study of total industrial fuel requirements.

With these estimates, gas would capture 28 per cent of the industrial fuel requirements after only five years of natural gas operation, and almost 60 per cent by 1988. More-



over, if these estimates of industrial gas sales are compared with industrial fuel requirements in the TCPL market areas, gas would capture 40 per cent of these requirements in 1963 and 84 per cent in 1988. The position of natural gas in this market would be a far larger share than gas has captured in any comparable market area where it is presently in use.

As to the impact on refinery operations, there is a tabulation in the middle of page 199, the estimates of refinery crude runs in Ontario and Quebec using both the estimates of this study of gas demand and those of Exhibit 47. Using the Exhibit 47 estimate of natural gas demand in the energy framework of section 8 of this study, the figures on yields of heavy fuel oil would be reduced to approximately 15 per cent; the average yield of the refineries in the two provinces combined is presently 20 per cent. Reduction to 15% would be required for 1960-1961, and would probably require a significant change in refinery equipment in Quebec. The total impact of the Exhibits 47 estimates of natural gas demand on refinery crude runs would be a reduction in Ontario of 60,000 barrels per day in 1962 and 1963 as compared with crude runs, if there were no increase in natural gas consumption; the reduction in Quebec would be 30,000 barrels per day for the same year. By 1987-



88 the reduction amounts to 350,000 barrels per day in Ontario, and 150,000 barrels per day in Quebec.

Turning now to page 181 the last study I would like to discuss is the price consideration on industrial fuel.

The estimates of industrial potential for natural gas are based upon the prices of coal and petroleum as they existed in 1957 and on the price of natural gas taken from current published rates of the distribution companies. It is assumed, in other words, that the relationship between the present price for natural gas and the prices of coal and petroleum products will remain constant over the next 30 years. The impact of TCPL's cost of service on the industrial gas potential was discussed above. There are, however, other influences which may also affect the assumed price relationship.

Data presented in Section VI demonstrated that there is no single delivered price for industrial fuel in an area. In 1957 the posted price for HFO in Toronto was 60 cents per Mcf equivalent. The price actually paid by industrial establishments varied, however, from 55 to 80 cents per Mcf equivalent. Specific location within an area and magnitude of use are the primary factors which create this significant variation around the quoted price. Another interesting observation is that coal prices are generally in the low range



of the over-all scale of industrial prices.

Turning now to page 185 heavy fuel oil is in the intermediate range and light petroleum products for industrial use are in the high range of the scale. These three ranges overlap, but the bulk of the coal is used at a price below the lowest price for heavy fuel oil, and the bulk of the heavy fuel oil is consumed at a price below the lowest price of M.O.B. When an increase in the price of one fuel occurs while the price of the others remains constant, that fuel will tend to lose a portion of its market. Obviously, however, a very major increase in the price of coal would be required before all consumers of coal would convert to heavy fuel oil. Thus, if the price relationships among these fuels shift in the future, each fuel will tend to lose or gain position in the market but, unless drastic shifts occur, will neither lose out completely nor serve the entire market.

The price of fuel in one area is related to the price of fuel in another area. For example, the price of heavy fuel oil in Toronto and Montreal is dictated by the price in Venezuela plus freight and tariff to Toronto and Montreal.

THE CHAIRMAN: I think you can skip this paragraph.

MR. CLARK: All right.



THE CHAIRMAN: We have had considerable testimony on this point.

MR. CLARK: I wish I had heard it sir. If I might begin on the next paragraph?

THE CHAIRMAN: Sure.

MR. CLARK: I just want to mention that from the above paragraph the price has dropped in 1958 for heavy fuel oil to about 46 cents per Mcf equivalent, and that there may be further reductions, particularly in Ontario, perhaps of 6 cents per Mcf equivalent; drop due to the St. Lawrence Seaway.

The production of heavy fuel oil is relatively inflexible depending upon refinery throughput, the nature of the crude, and the refinery equipment utilized. If the price of fuel drops too low as compared with the price for other petroleum products, the refiner can install equipment which will reduce the fuel oil yield. Estimates furnished by major refiners in eastern Canada indicate that the price of fuel oil would be allowed to drop approximately 15 cents per Mcf equivalent from 1957 prices before equipment would be installed to reduce fuel oil yields.

This is based on the price of fuel oil compared with the price of crude oil and the price of other products for that year, even on the basis of the reduced price in 1958 since



prices for crude and other products are also depressed to the same extent. It is estimated that further reduction perhaps 10 to 12 cents per Mcf equivalent would be made before alternate disposing means would be utilized. It is therefore quite possible the refiners in Ontario and Quebec would reduce the price of fuel oil as required in order to prevent natural gas from capturing much of the heavy fuel oil market.

In summary, the price of natural gas for firm industrial use is expected to increase substantially due to the cost of service of TCPL. The price of heavy fuel oil has dropped substantially from that which existed in 1957. The price of heavy fuel oil in Ontario is expected to drop again because the completion of the St. Lawrence Seaway will give more nearly comparable prices in Ontario and Quebec. The price of heavy fuel oil can be depressed still further before refiners will dispose of the heavy ends by alternative means. The possibility that the price of natural gas for industrial use will increase in Ontario and Quebec, due to cost of service, does not mean that the prices of competitive fuels will also increase commensurately. As mentioned above, the prices of fuel oil and coal are dictated by prices of these fuels at the source (of the fuel imported) and the cost of transportation. In Ontario and



Quebec, therefore, the prices of other fuels could drop due to external influences, while the price for natural gas could increase.

It therefore appears that gas may well be less competitive in price than has been assumed in this study for firm industrial use, using either of the basis of this study. So far as can be determined, the estimates given in Exhibit 47 do not consider the possibility that the price of competitive fuels may be depressed by competition from other fuels.

MR. MacKIMMIE: That, Mr. Chairman closes the direct presentation of this report of Alberta and Southern.

THE CHAIRMAN: Thank you very much Mr. MacKimmie. I think that having regard to the time Mr. Pattillo, there is not much point is there in carrying on before lunch?

MR. PATTILLO: No Mr. Chairman, but I think that I would like to say something before lunch so that you and the Commissioners may have an opportunity to think it over during the lunch hour and advise me if you disagree with me, because it will effect the whole examination that I propose to make this afternoon.

With great respect, this evidence that has been submitted to-day seems to me to go beyond the purview of the Commission enquiry. As I



understand it, the Commission is directed to recommend to the Government the principles that should be applied in the determination of whether or not there should be export of natural gas from this country, but they are not directed, as I understand it, to say having found what principles should be applied, how in fact the principles should be applied. In other words, it seems to me that this evidence may be most important evidence, assuming that the Commission did recommend that a Energy Board be created, and that an Energy Board apply certain principles in determining whether export of gas should be permitted. This evidence might be most important for such a Board in determining the application of the principles. I feel, subject to your ruling, that this Commission is not going to recommend that any one company be prohibited from exporting gas, or be permitted to export gas, and I don't think that this Commission is going to find, at least I would submit today as Counsel that this Commission should not find quantitatively how much gas is required for Canadian consumption. I think that is a matter for a subsequent tribunal of some sort, or Government Department, or whatever body is to deal with the matter. Now, if I am right in that, then I propose to direct my questioning along the lines that I understand it should be and spend very little time testing the accuracy of these



figures.

MR. MacKIMMIE: May I speak to that matter, Mr. Chairman?

MR. CHAIRMAN: Certainly.

MR. MacKIMMIE: Mr. Chairman, I am not sure I thoroughly understand my friend's comments, but I would like to make this perfectly clear sir: The last thing in the world that my client wants is to use this Commission to pass on any application before any administrative tribunal in this country. In this particular instance sir a market study was presented before the Commission in January or February, at that time. This was designed on the same matter because of the policy statement we made to this Commission. I regret very much Mr. Chairman that Mr. Pattillo did not advise me of his views when this report was filed because the last thing in the world we want to be in a position is the position that my friend suggests, and certainly whatever ruling may be made we entirely accept the same, but I would much prefer to have known if there was an objection to the form of this report when it was filed with the Commission sir, and indeed I may say had it been then made known to us, it would not have been presented. I feel very badly sir to think I have misled you or any member of this Commission by presenting this report.



THE CHAIRMAN: Oh, I don't think Mr. Pattillo meant that.

MR. PATTILLO: I did not mean that at all.

THE CHAIRMAN: I did not understand that to be the sense of his remarks Mr. MacKimmie.

MR. PATTILLO: No.

THE CHAIRMAN: I would take some responsibility as Chairman of the Commission on this score, because when I was first approached by somebody acting on your behalf and asked if the Commission would be willing, and it would be helpful to the Commission to have a report of this nature, my answer was in the affirmative.

MR. PATTILLO: I want to make it clear I am not criticising the report at all. I am simply saying that I think that for the purpose of this Commission that my examination should be directed a certain way and I would like to get approval or disapproval on that by the Commission.

MR. MacKIMMIE: Quite obviously I misunderstood Mr. Pattillo, Mr. Chairman, but I certainly did want to make that point clear.

THE CHAIRMAN: Let me put it to you another way: I would think that a great deal of the information in this report would be of great assistance to the Alberta Gas and Oil Conservation Board, and also as Mr. Pattillo suggests to any regulatory



authority that might be established, and in that connection I would think that you have done a very magnificent service.

MR. MacKIMMIE: Thank you sir.

THE CHAIRMAN: The Commission will discuss this matter. You do not wish a ruling before we adjourn, Mr. Pattillo?

MR. PATTILLO: No.

THE CHAIRMAN: I do not think it will be very difficult to reach a decision.

MR. FRAWLEY: Mr. Chairman, so that the Commission might be helped in planning its afternoon, I wish to say I associate myself with what Mr. Pattillo said and any questioning of Mr. MacKimmie's clients that I would have would be almost entirely for the purpose of clarifying three or four points.

THE CHAIRMAN: Thank you very much Mr. Frawley. We will now adjourn gentlemen and meet again in this Council Chamber at 2.15 this afternoon.

--- Whereupon the proceedings adjourned at 12.40 p.m. to be resumed at 2.15 p.m.



---On resuming at 2.15 p.m.

THE CHAIRMAN: Mr. MacKimmie, and Mr. Pattillo, in answer to your question that was raised, let us make it clear that the responsibility of this Commission in this field is to make a recommendation to the Government of Canada with respect to a national policy in regard to the export of sources of energy from Canada and included in that, of course, is natural gas. The jurisdiction of the Government of Canada comes on the final export permit: the primary jurisdiction is the provincial jurisdiction. In February we were very conscious as a Commission of having reached Calgary and having our hearings there at a time when there were competing applications for export permits from the Province of Alberta which must first issue a permit, and we were desirous of not getting ourselves in a position where we were, shall I say, the meat in the sandwich between competing applicants for the export of natural gas. The Government of Alberta made it very clear in their submissions to us that in granting any permit they would take into account the claim of Canadians to be serviced by whatever source of energy was involved. We had before us, and indeed we were very surprised and I know perfectly well that the officials of Trans-Canada are aware of this, the estimate of their



Canadian sales made on their behalf by Commonwealth Services. It came as a shock, we knew nothing about it. In that sense I am not suggesting they were exaggerated and wrong in any way but they were so much greater than any public notice had ever been given of these sales that we were surprised. Subsequently, because I feel in fairness to Alberta and Southern and Mr. MacKimmie, you and your clients, that I should say this: I was asked if it would assist the Commission in any way if we were provided with a study which they proposed to have made by, at that time, Sanford Research Institute. I said, as has been the policy of the Commission, that if anybody wishes to submit information to the Commission on matters within its terms of reference we would be very happy to have that information and I so informed Mr. MacKimmie's clients.

Now, subsequent to that, and I suppose possibly it is the fault of myself as Chairman, and the Commission as a whole, my idea had been that it would be submitted in writing and that was it because the Commission is very conscious that they are not going to get into any dispute between Trans-Canada and Alberta and Southern. We are well aware of Trans-Canada's position before the Alberta Gas and Petroleum Conservation Board. However, this got onto our agenda as something to come publicly before us and that is why we have been hearing it



this morning.

I would say to Alberta and Southern that we are very happy to have had it. We do not wish to go, as a Commission, into all the detail that is in the report but the report, in my opinion, is a very substantial contribution to the library of information which the Commission has been building up in its hearings. I do not want Mr. MacKimmie or his clients to feel that there was anything wrong in submitting this brief because I think the Commission feels it is perfectly in order.

On the other hand, I do not wish Trans-Canada to feel that they have to reply and I hope that both parties will understand the Commission's position in the matter. We are not the ones to recommend the issuance of an export permit for any particular applicant for the export of an energy resource from Canada. I think if counsel would confine his questioning to matters that might be on general principles rather than details of the principles it would be more in keeping with the wishes of the Commission.

MR. PATTILLO: Thank you, Mr. Chairman.

MR. McNEILL: Mr. Chairman, if I might say a word?

THE CHAIRMAN: Yes, certainly.

MR. McNEILL: Mr. Chairman, I appreciate the problem that has confronted the Commission and



it, quite frankly, is something that has confronted us at Trans-Canada. We were advised that we should have an opportunity to cross-examine on this report. At the same time, we have genuinely throughout our appearances at these hearings and I think everyone else had the same end in view, that this is not a contest. Accordingly, I was very much in a dilemma as to what extent I might make my cross-examination on this report. You have taken me off that dilemma and accordingly, we will not wish to make any cross-examination. We will reserve our cross-examination in its entirety for such tribunal as may be the proper tribunal to settle this contest between Alberta and Southern.

At the same time, in view of the fact that this submission is on file with this Commission and has had already tremendous press and radio coverage, I would like at this time to record that in not examining at this time Trans-Canada does not admit the validity of any portion of this report and we will cross-examine vigorously on it and rebut it, as I said, at the proper time and place.

I have one further request to make in connection with the material, the report that is now being filed. When we go on in the morning with various other matters that we were slated to appear before your Commission on, we would like to enter one short exhibit without espousing it other



than describing it simply to put ourselves in the position of at least to that extent completing this Commission's records.

THE CHAIRMAN: That is perfectly all right.

MR. McNEILL: Thank you very much.

THE CHAIRMAN: Thank you for your co-operation.

MR. PATTILLO: Mr. Chairman, I would like to contribute these few words: I told Mr. MacKimmie that the reason I made this statement that I did this morning was to make it clear on the record why my examination, if the Commission agreed with me, would be limited to the matters that I propose to cover. I had no criticism of the report. I did not criticize the report of Trans-Canada when it was made in February and I do not propose to criticize this report because I consider that is a function of another tribunal, something like the Federal Power Commission.

THE CHAIRMAN: I would think any two firms who wrote two different economic feasibility studies would be like two lawyers. They seldom would agree.

MR. PATTILLO: They could not earn their fee if they did. Mr. MacKimmie, I will address my questions to you and you can determine, or among you you can determine how the answers are to be given.



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MR. MacKIMMIE: If you would direct them
to Mr. Clark.

MR. PATTILLO: Very well, thank you.



MR. PATTILLO: Mr. Clark, would you agree with me that there is a margin of error in making one of these surveys into the future?

MR. CLARK: There is a margin of error in making any estimate.

MR. PATTILLO: I understood this morning that you had made 18 of these surveys.

MR. CLARK: That is not quite correct, sir; it was 15.

MR. PATTILLO: Well, from your experience what have you found the margin of error to be?

MR. CLARK: Well, there is a fairly wide range in the margin of error, but in many studies we have been well within 10 per cent. However, for any particular year there is no intention that we be precisely on target; our projections are normally based upon long-range trends and don't take into account the cyclic effect of the economy.

MR. PATTILLO: Would you just give me the range?

MR. CLARK: I would imagine 10 percent to 20 percent margin of error.

MR. PATTILLO: You have never been more than 20 percent out?

MR. CLARK: Well, to tell you the truth, I can't actually answer that accurately, because I have never checked it. It is safer not to check.

MR. PATTILLO: You put it on the same



principle of let your past mistakes lie down.

Now, am I correct in thinking that, first of all, in your studies on this subject you have looked at the areas in which gas is going to be distributed?

MR. CLARK: Yes, sir.

MR. PATTILLO: Now, in looking at these areas, have you looked at all of the distributing companies?

MR. CLARK: What do you mean by "looking at"?

MR. PATTILLO: In looking at the areas in which gas is going to be distributed by Trans-Canada, have you made a study of all the distributing companies, because Lakeland and some other companies are not in this picture?

MR. CLARK: We, as I said, I believe, this morning, in Area No. 3 the consumers' area was primarily Consumers' Gas Company.

MR. PATTILLO: I know that Mr. Jones will tell you that that is entirely Consumers' Gas Company, but Lakeland and a couple of others don't agree.

MR. CLARK: Lakeland is included in our market area as far as the area that Lakeland is going to serve is concerned.

MR. PATTILLO: Now, on the matter of population, you have explained to us in one of these exhibits the differentials between you and Trans-Canada.



on the gross figures. Did you check as to the Trans-Canada figures and the source of them?

MR. CLARK: I don't think I understand the question. Check in what way?

MR. PATTILLO: Well, Trans-Canada come up with a projected population figure.

MR. CLARK: Yes, sir.

MR. PATTILLO: You people come up with quite a different population figure. Did you make any check as to the basis for their population figure, Commonwealth Services?

MR. CLARK: There was no data supplied in our submission to make that possible.

MR. PATTILLO: And you didn't go to them and say to Commonwealth, "Where did you get that figure?"

MR. CLARK: We did not.

MR. PATTILLO: Then we come to the matter of homes. You have used the straight average of 3.8.

MR. CLARK: Yes, sir.

MR. PATTILLO: They have used a varying average from 3.9 down.

MR. CLARK: Yes.

MR. PATTILLO: What check did you make as to the basis for their 3.9 down?

MR. CLARK: I believe it is said in their Exhibit 47 that they are assuming a continual downward



trend in the persons per dwelling unit consistent with the past trend.

MR. PATTILLO: Did you make any check as to the number of personnel living in a home in the Province of Quebec and in the Province of Ontario at the end of the War as compared with today?

MR. CLARK: Yes, sir, we looked at the trend.

MR. PATTILLO: Was the trend downward?

MR. CLARK: Yes, it was.

MR. PATTILLO: Now, why would you take a straight line trend, then, rather than a bearing downwards trend?

MR. CLARK: Well, in the first place, the trend appears to be levelling out, and, in the second place, we have read in several sources from published material by the Dominion Bureau of Statistics and the Bureau of Census in the United States that, while these trends have existed in the past, the facts that go into affecting these trends in the future are such that a level of trend is apparent for the future. If you like, I can read the source to you.

MR. PATTILLO: No. But do you agree with me that the trend is based on the number of housing starts in any - -

MR. CLARK: That is just one of the factors, sir.



MR. PATTILLO: In making your calculation you should take constant trend. Did you take into consideration the difference in the trend of housing starts in the year 1957 with the year 1958?

MR. CLARK: No, we did not.

MR. PATTILLO: Now, we come to industries. As I understand what you said this morning regarding industries, you have assumed the same price differential between competitive fuels; is that correct?

MR. CLARK: The same price relationship?

MR. PATTILLO: Yes.

MR. CLARK: Yes, sir.

MR. PATTILLO: Did you take into consideration the possibility that there was no market for western Canadian oil but there would be for western Canadian gas?

MR. CLARK: We were not concerned with the source of energy, we were concerned only with the total market and the share that each fuel might serve on the basis of competitive price. Supply was not a consideration.

MR. PATTILLO: Would you agree with me that if you have a producer who is both in the oil business and in the gas business and he has to have regard for what market is available and what isn't, that is a factor that must be taken into consideration?

MR. CLARK: I am sorry, I didn't understand you again. Would you mind rephrasing it?



MR. PATTILLO: I will just put it like B.A. put it. They are primarily in the oil business; when they were looking for oil they found a lot of gas. They say that if they could have a market for gas it would also help the oil situation immeasurably. So I am suggesting to you that if there is at present and in the foreseeable future not a complete market for Canadian oil, perhaps the producer would be interested in promoting the gas market. Did you take that into consideration?

MR. CLARK: No, sir, we didn't.

MR. PATTILLO: Next I will come to the question of price. Did you take into consideration the fact that in Canada the producer of oil and the producer of gas is, largely speaking, the same person, when you were talking about the relation of price?

MR. CLARK: Well, that was apparent, yes, sir; it is apparent that they were the same companies.

MR. PATTILLO: In your reflection of the market and what might happen, did you have regard for the fact that the producer is interested in income and if he couldn't make it in the oil perhaps he had better push it up from the gas?

MR. CLARK: Well, it would be a very fine supposition if he couldn't make it on the oil. I fail to see that he cannot make it on the oil, however.



MR. PATTILLO: I fail to see it, too, but some of them say they haven't, and that is why they want to build a pipeline to Montreal.

MR. COMMISSIONER HOWLAND: Mr. Pattillo, I don't understand. Would you clarify what the background of this question is?

MR. PATTILLO: What I have in mind, Mr. Commissioner, is this, that if you have so many oil fields and you are cut back to, say, 30 percent of your mpr, and you had so many gas capped fields that are not producing at all, if you were an integrated company you keep your price relationship of oil and and gas in juxtaposition so that you may sell gas.

MR. COMMISSIONER HOWLAND: You are saying here that the assumption could be that the contract price of Trans-Canada could be lower than it is now, in this questioning. There is a contract price, as I understand it, with Trans-Canada.

MR. PATTILLO: Trans-Canada needs more gas, as I understand it, than they have under contract.

MR. COMMISSIONER HOWLAND: And you are saying if the future contracts are lower priced, would this affect this study; is that correct?

MR. PATTILLO: No, there is a statement in the submission that the price of fuel oil may be reduced in the future and may cut a substantial part of the gas market.

MR. COMMISSIONER HOWLAND: I see. Well,



that clarifies it. The assumption is a change in the price of oil.

MR. CLARK: The price of delivery of crude oil is not primarily to serve the residual market; that is a by-product, and no matter what you are going to do at the end of it, you are going to serve the fuel oil market.

MR. PATTILLO: There is a good deal of fuel oil that is coming into Canada today that is being exported.

MR. CLARK: I think we may be a little more explicit and say 10 per cent.

THE CHAIRMAN: What dollar figure would 10 per cent be?

MR. CLARK: I would have to calculate it. As near as I can make out, it is around 6,000 or 7,000 barrels per day, \$18,000 a day, and if you care to run that out, about \$5 million, I believe, for Ontario and Quebec.



MR. PATTILLO: That is about 200,000 barrels a year?

MR. CLARK: Yes, 200,000 barrels a year.

MR. PATTILLO: Now, then, if you were advising the Canadian Government, would you not agree that if you could work out a system for the use of gas and oil that you could save the importation of those 200,000 barrels a day, it would be in the interests of the Canadian economy?

MR. CLARK: I do not think I am competent to answer that question, sir.

MR. PATTILLO: Have you somebody there that would?

MR. ARMSTRONG: I would like to try to answer that, sir. If I may try to anticipate what is behind your question, we could ---

MR. PATTILLO: Not anticipate -- just guess.

MR. ARMSTRONG: If we could drop an iron curtain between the United States and Canada, we could make all our products go east and west and not north and south.

MR. PATTILLO: Yes.

MR. ARMSTRONG: It is true that if we took measures to develop the western market for gas and oil we could save dollars, but if this is done by blocking east-west trade, this is not necessarily going to save dollars over-all, because



we can block out American coal from coming into Canada, and, looking at it from the point of view of the continent, that may be a desirable relationship, and we will make those dollars by selling oil or gas some place in the United States.

MR. PATTILLO: Mr. Armstrong, you are younger than I, you come from the West and I come from the Maritimes, but I have heard a good deal about this east and west flow in the interests of the national economy. Do you agree as an economist that the C.P.R. would not even be built today if you worked on the principle you have just enunciated?

MR. ARMSTRONG: It had a certain amount of government assistance too.

MR. PATTILLO: You have not answered my question, Mr. Armstrong. On the principle you have just enunciated, the C.P.R. would not be built today?

MR. ARMSTRONG: That is true.

MR. PATTILLO: Now let us get back to this price business again, Mr. Armstrong, or Mr. Clark rather. What I want to get at is this. When you were making this study and coming to the conclusions you did, did you take into consideration the fact that the producers of both oil and gas were the same person and that therefore they in relation to their own interests could determine



the respective prices at which they would be prepared to sell their products?

MR. CLARK: I am not at all sure that they are the same person in Eastern Canada. They are to some extent, I am sure, but I am not sure it is entirely true. I am not sure that those who control Western Canada control the entire operation.

MR. PATTILLO: Well, let us go back to this. I am not talking about the refiners. Let us go back and put it on a hypothetical basis. Assuming that the producer in Western Canada is interested in both oil and gas and that in his own interests he has the ability to control the relationship of the price of both, has your report taken that into consideration?

MR. CLARK: I think you are asking me if I am taking into consideration a hypothetical question and not a factual thing at all. It seems to me, if I may continue for just a moment, that we faced the same problem before, and the fact that the difference in transportation costs between gas and oil is so great that the potential revenue from oil in Alberta is far greater than it is from gas. So I cannot really say that, even if they control both, they would work against oil, particularly for a fuel that is a residual product.

MR. PATTILLO: Perhaps I have the same personal view but I know there are other people in



the room that do not agree with me. Now let us go back again. Have you, and having regard to the future market of gas in Central Ontario and Quebec, taken into consideration that the producer of gas and the producer of oil is in large measure the same person? I will call to your attention particularly B-A Oil and Shell Oil, who have large deposits of gas up there and both of whom have been before us advocating that it is in the interests of the economy to get on with the production of gas.

MR. CLARK: Well, we have not really considered it, I am afraid, sir.

MR. PATTILLO: Thank you. Now let me come to the United States markets that you have used for the basis of comparison and analogy. Would you agree with me that the United States markets that have begun the use of natural gas since the end of the last war have been increasing at an incredible rate?

MR. CLARK: The distribution companies using gas?

MR. PATTILLO: I am thinking particularly of the Seattle Distribution Company, Portland Distribution Company, Northern Gas, all the gas that has been distributed in the mid-west and in the far west, and the terrific rate of development, including Pacific Gas and Electric.

MR. CLARK: They have been increasing at



a very rapid rate. I believe that is considered in Table 52.

MR. PATTILLO: You have used that rate?

MR. CLARK: The rate for northern areas, yes, sir.

MR. PATTILLO: In looking at the Canadian gas?

MR. CLARK: Yes, sir.

MR. PATTILLO: Have you had any regard for the difference in climatic conditions?

MR. CLARK: Yes, sir, we have adjusted for degree day differential.

MR. PATTILLO: I think those are all the questions that I want to ask you, Mr. Clark.

May I ask Mr. Hough some questions?
Mr. Hough, in making your cost of services analysis, have you included the Emerson outlet or excluded it?

MR. HOUGH: We have included the facilities for the Emerson outlet and also the revenue from that outlet.

MR. PATTILLO: Well, supposing that the Government of Canada in its wisdom saw fit not to permit that outlet, what would be the picture?

MR. HOUGH: Well, we made a quick calculation regarding that, although that was not the primary purpose of this study, and we find that actually whether you include that outlet or not makes very little difference in the cost of



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delivering gas to Eastern Canada. In the first place, the rate proposed for the export at Emerson is very close to our calculation of the cost of that service to Emerson if you use the average field price of gas in Alberta in allocating the cost of gas to that sale. If you assume that the Emerson sale is superimposed on the Canadian sale and therefore should have all of the high priced gas charged to it, then the price is a little below the cost of service. If we take the Emerson sale out and readjust the design of the pipe line so that it will just handle the transportation of gas for Canadian markets, then we come up with these relative costs of service to the various Trans-Canada rate zones. To Saskatchewan we assume no change there. We really did not analyse that market outlet. In Manitoba, without the Emerson sale, the cost of service would be 22.7 cents per Mcf; with the Emerson sale it would be 23.5 cents per Mcf. In the western rate zone, without Emerson, the cost of service would be 37.9; with Emerson it would be 38.0. In the northern rate zone, without Emerson the cost would be 60.9; with Emerson, 59.6. In the central rate zone, without Emerson it would be 73.5, and with Emerson 71.8. In the eastern rate zone, without Emerson it would be 82.5; and with Emerson 80.3.

MR. PATTILLO: Now, Mr. Hough, in making



that calculation of cost of service, have you Mr. Frawley's bugbear, deferred income tax, in there?

MR. HOUGH: No, we do not have deferred income tax. We made all of our calculations for a typical year. We selected the year 1962-63 because we thought that would be typical and we used the normal income tax.

MR. PATTILLO: Now, would you explain to me, in arriving at the revenue you have to have, whether you have charged interest on your funded debt as an expense?

MR. HOUGH: Well, if I understand your question ---

MR. PATTILLO: May I put it this way? Are you going to pay the interest on your funded debt out of rate of return or are you going to charge the interest on the funded debt before you ascertain the quantum for your rate of return?

MR. HOUGH: We are going to pay the interest out of the rate of return?

MR. PATTILLO: You are going to pay the interest out of the rate of return?

MR. HOUGH: Yes, sir.

MR. PATTILLO: Is that generally the practice that is followed in the United States in gas companies?

MR. HOUGH: Yes, it is.

MR. PATTILLO: Can you help me, Mr.



Hough, about oil companies, because we have been in a bit of confusion about those. What happens in the case of oil transmission companies, and the pipe lines?

MR. MacKIMMIE: Mr. Lynch has some experience of that, Mr. Pattillo.

MR. LYNCH: I believe you have reference to the submission that was made by Canadian pipe Lines?

MR. PATTILLO: No, to the oral evidence that Mr. Blair gave and some of the oral evidence we got from somebody else later that did not seem to fit.

MR. LYNCH: The practice of expressing the rate of return by the oil transportation companies and the natural gas transmission companies differs in whether or not you should include the interest on the funded debt.

MR. PATTILLO: You mean, oil being more expensive, the transmission should be equally more expensive?

MR. LYNCH: I can only express what the practice of the industry is. The practice of the industry is the yield being the net income without any reference to the interest on the debt.

THE CHAIRMAN: Does that apply in both oil and gas?

MR. LYNCH: No, in gas as regulated by



the Power Commission. The rate of return is an expression of the sum of the interest on the debt plus the net income, whereas in the case of oil, the Interstate Commerce Commission, they merely express a return equal to the net income. Do I make myself clear?

MR. PATTILLO: Very clear.

MR. COMMISSIONER HARDY: Mr. Pattillo, I wonder whether I might ask one point here. That arises purely on account of the different jurisdictional authorities, is that right, the difference in practice?



MR. LYNCH: I think that is generally true, except I think that it is merely -- I will say that is generally true, yes.

MR. COMMISSIONER HARDY: Why isn't it exactly true?

MR. LYNCH: Well, because there are other oil pipeline transmission systems which are not regulated by the Interstate Commerce Commission, but they generally follow that practice.

MR. COMMISSIONER HARDY: Thank you.

MR. PATTILLO: I guess it depends which league you are playing in.

MR. LYNCH: I guess so.

THE CHAIRMAN: Mr. Pattillo, before you go on to another question, unless you are going to ask it I would like to ask Mr. Lynch whether amortization on funded debt is treated in the same manner.

MR. LYNCH: Would you mind repeating that question?

THE CHAIRMAN: Perhaps I could take one or two more sentences to make my question a little clearer. Ordinarily such a company, pipeline company would charge depreciation, and they would have a rate of return, and it would have to pay a certain amount of this debt, by way of sinking fund or amortization. Would that sinking fund or amortization payment be charged to the expenses, not of operation, but in some other way prior to the determination of the rate of



return on the load basis, or would that sinking fund or amortization or that depreciation be charged and whatever is left over is the rate of return on the load basis?

MR. LYNCH: I think they both follow the same practice which is to retire the debt by using the depreciation plus whatever amount they needed from the net income. That would be true in both oil and gas transmission business.

THE CHAIRMAN: Thank you.

MR. PATTILLO: You mean one is treated as an expense, the other one is paid for out of the cost of service?

MR. LYNCH: No, I say they are both on the same basis. They are both a cost -- the depreciation as a cost.

MR. PATTILLO: All right, I have got it. So that the gas business **both** in transmission as well as in production is the poor cousin?

THE CHAIRMAN: But you wouldn't disagree that they are kissing cousins.

MR. PATTILLO: I am sure Mr. Laughton, if he is here this afternoon, would not disagree. Now, would you agree with me that in determining your cost of service all your calculations are predicated on the market research which is produced in this report?

MR. HOUGH: Well, we did fit the pipeline design to the market forecast for the year 1962-63,



and consequently the calculations do fit the market.

However, I think the calculations are applicable over wide range of markets because of the year we selected. In the year we selected the forecast low was sufficient to load the Trans-Canada Pipe Line to just about its most efficient throughput, and as time goes on and the load increases, we would not expect the cost to go down but when looping first started it would tend to go up, and then go back down again to about its level, and we had to build a third loop that would go up slightly and then go down, but I think the figures that we have developed are just about the optimum figures.

MR. PATTILLO: Well, what I was really trying to get at, Mr. Hough, was this: did you read the evidence given by the Trans-Canada people in Calgary?

MR. HOUGH: Well, yes, I believe I did.

MR. PATTILLO: And you studied the report?

MR. HOUGH: Yes.

MR. PATTILLO: And you read the cost of service calculation by Commonwealth?

MR. HOUGH: Yes.

MR. PATTILLO: Now, I don't want to get into a fluffle about the evidence, I would merely like you to explain for the purpose of us appreciating both reports wherein you disagree with



their cost of service calculations read in the light of the evidence they gave as to the basis of it?

MR. HOUGH: Well, we disagree with their calculations on several aspects. Perhaps I could make it clear by stating first wherewe do not disagree, that is, state the considerations that we accepted.

We used their design, and we used their capital cost estimate with only minor adjustments, and we used their operating cost estimate. We used the basic unit cost figures and simply adjusted them to the different size operation that we were working on. We used the same bond industry and we assumed the same volume of sales to Emerson, to Union Gas, and to Saskatchewan Power. Now, as to how we differ from them: in the first place, we have a smaller volume throughput for the year 1962-63.

MR. PATTILLO: That was based on the report the Stanford Research and Economic Research came up with?

MR. HOUGH: That is right. When I say that we used the same design, I should have said that we used a design developed by Trans-Canada for an earlier year because they reached the load that we used in an earlier year, so we used their design for that load.

MR. PATTILLO: Why?

MR. HOUGH: Because that is an efficient design for that load.



MR. PATTILLO: I know, but wait a second, that is something that completely confuses me. If you were going to change the hypothesis that they have used, why would you take their load?

MR. HOUGH: We did not take their load.

MR. PATTILLO: Their design rather?

MR. HOUGH: Their design, well, because we believe it is a good design. We did not go into the engineering in any detail, but we had no reason to question their design.

MR. PATTILLO: No, but why would you differentiate -- let me see if I have got this right. Perhaps we are arguing at cross purposes: if they have designed a system on the assumption that they are going to have a certain volume of business, you, in fact, say you are not going to have that volume of business, don't you necessarily change the whole hypothesis?

MR. HOUGH: Well, perhaps I can explain it this way: in the first place, they build a single line from one end to the other, and they put on enough horsepower to handle the load that they have in the first year or two of operation. Now, in the design of that line they looked ahead and anticipated they were going to have a larger load and they selected a larger diameter pipe than they actually needed for the first year or two.

MR. PATTILLO: That is your opinion.



MR. HOUGH: Yes, and I am sure they would agree. As the load develops they add horsepower until they get up to the optimum capacity of a single line, and then they start building parallel lines so that after they once build the first line, they can increase capacity each year to meet their increasing load. Now, all we did was take the same diameter line that they have under construction and it turned out that the rate that SRI-ERC forecasted for 1962-63 was large enough to load a 34-inch, 30-inch, 20-inch combination to about its most efficient capacity, so we kept that same pipe diameter and we took the horsepower required to put that much gas through the line which Trans-Canada had calculated and planned to install an earlier year, so that we used their design for an earlier year to handle our load in 1962-63.

MR. PATTILLO: I see, so what you are saying the cost that they thought they were going to be confronted with in 1959, you came up with in 1962 or 1963?

MR. HOUGH: That is right.

MR. PATTILLO: Would you go on and explain?

MR. HOUGH: Pardon me, I did not finish answering what the question was. I was just going to explain the differences in our cost figures and Trans-Canada's. In the cost figures that Trans-Canada gave, they showed in each year for which they



gave figures an abnormally low rate of return, and they included no income tax in their calculations.

MR. PATTILLO: Well, that was explained in the evidence, wasn't it?

MR. HOUGH: Yes, it was explained in the evidence.

MR. PATTILLO: They did not anticipate having to pay any income tax for a number of years?

MR. HOUGH: That is right, but we recognized that as an abnormal situation. We were trying to get an idea of what the normal cost of transporting gas to Eastern Canada would be.

MR. PATTILLO: Did you put income tax in there?

MR. HOUGH: I put income tax in, yes sir.

MR. PATTILLO: Then you in fact did defer income tax?

MR. HOUGH: No, I put the full income tax for the year that we used. We used the full 47 per cent in the expenses for that year.

MR. PATTILLO: You brought them out with a profit that year, is that it?

MR. HOUGH: Yes.

MR. PATTILLO: All right.

MR. HOUGH: Now, we assumed that they would make 7 1/2 per cent on their rate base for that year and that they would pay income tax.

MR. PATTILLO: Would you tell me why



you took 7 1/2 per cent?

MR. HOUGH: Well, our basic, one of our basic premises in developing this study was that Trans-Canada will be a growing pipeline system. Their forecasts of load by the ERC-SRI forecast shows a continually increasing market for natural gas in eastern Canada, so Trans-Canada will have to increase its facilities from time to time.

We do not believe they can do that -- that is they can finance that kind of expansion if they do not show a normal earning on their property, so we selected 7 1/2 per cent because under Trans-Canada conditions that seemed to produce about the normal earning situation or slightly on the low side of the normal earning situation on comparable lines in the United States.



MR. PATTILLO: What do you consider normal earning situations, after having paid your interest, what do you say the rate of return should be? You are paying your interest out of the $7\frac{1}{2}$ per cent, from your experience what do you say the rate of return should be in dollars translated to your capital employed?

MR. HOUGH: Well, it runs about 3 per cent in this case.

MR. PATTILLO: I am afraid I have difficulty in following you.

THE CHAIRMAN: 3 per cent after payment of interest?

MR. HOUGH: Yes.

THE CHAIRMAN: The payment of interest reduced $7\frac{1}{2}$ per cent and the rate base down to 3 per cent, a dollar equivalent of 3 per cent?

MR. HOUGH: 3 per cent of the rate base.

MR. PATTILLO: And you say that is normal?

MR. HOUGH: Yes.

MR. PATTILLO: Would you please go on and expand.

MR. HOUGH: We used a higher field cost of gas than Trans-Canada cost figures.

MR. PATTILLO: Why?

MR. HOUGH: Their figures were based on their current or present purchase contracts, and



we made the assumption that any gas they purchased over and above that provided in their present contract would have to be paid at going prices in the Alberta fields.

MR. PATTILLO: What price did you use?

MR. HOUGH: We used 15.97 cents, roughly 16 cents.

MR. PATTILLO: Why?

MR. HOUGH: Because that is the price that Alberta and Southern pays in that year, in 1962-63.

MR. PATTILLO: Well, did you take that 16 cents which would be what they would have to pay for new gas if they paid the same price at Alberta and Southern in that year and average it with gas that they would be using in that year which they bought at the original price, 10 cents?

MR. HOUGH: Yes, we did.

MR. PATTILLO: And you only got that differential of .03?

MR. HOUGH: No, our average price of gas was 11.61 cents.

MR. PATTILLO: That was based on the Emerson contract?

MR. HOUGH: Yes.

MR. PATTILLO: Assuming the Emerson contract was not permitted by the Government then the price would go down?



MR. HOUGH: That is right, yes.

MR. PATTILLO: What would it go down to from your calculations?

MR. HOUGH: Well, in this particular year it would be 10.22 cents.

MR. PATTILLO: Yes?

MR. HOUGH: We also adjusted the cost of delivering gas to the Saskatchewan gate, recognizing that this additional gas that is required now or in this year will probably come from Western Alberta whereas a substantial part of the gas that they now have under contract originates in Eastern Alberta. That was a minor change. Then one of the major differences between our figures and theirs is that in allocating cost to different rate zones we gave full recognition to the length of the haul on the cost of service.

MR. PATTILLO: One thing I am not clear about on what you have said now, am I wrong in thinking that Alberta Gas Trunk agrees to deliver gas at the take-off point at a certain price?

MR. HOUGH: Well, I believe - -

MR. PATTILLO: Regardless of from whence it comes?

MR. HOUGH: I believe that is correct for a limited period of time, but as I recall the contract between Trans-Canada and Alberta Trunk Line it provides that eventually the Trunk Line will



be compensated on a cost of service basis.

MR. PATTILLO: You said "eventually"?
It arrived in 1962?

MR. HOUGH: That is right.

MR. PATTILLO: Yes?

MR. HOUGH: I mentioned that we gave full effect to the length of haul in determining the cost of delivering gas in each rate zone, whereas Trans-Canada rates tend to average the cost for various zones. They are higher for the most distant zones but they do not come even close to recognizing the additional cost for hauling gas to those distant points. Then, in allocating the cost of gas to various classes of customers we gave full effect to the load factor which I believe Trans-Canada gave only partial effect.

MR. PATTILLO: Mr. Hough and gentlemen, may I put this to you then and I am not going to continue the examination beyond this point, but recently in the case of a company we had three experts come in with reports all of which differed. Would it be fair to say, Mr. Hough, Mr. Armstrong, Mr. Clark, that if the Trans-Canada submission as to the potential market and cost of service was over on one side of the fence then you are just as far on the other side?

MR. ARMSTRONG: I would not say so at all, sir.



MR. HOUGH: I would not, either.

MR. PATTILLO: Well, could you tell me one thing in this report that any of you gentlemen have taken into consideration in favour of Trans-Canada that it did not take into consideration in its report?

MR. HOUGH: I will tell you one, yes, we tried to give them a reasonable profit.

THE CHAIRMAN: Trans-Canada was too modest.

MR. PATTILLO: Those are all the questions I have unless any of you can produce another factor that you took into consideration.

THE CHAIRMAN: I believe when you were discussing with Mr. Clark that he said 6,000 barrels per day of heavy fuel oil that you were marketing into Canada, the figure went on to the record at 200,000 barrels a year and Mr. Levesque has done some homework very quickly and it is just somewhat in excess of \$2,000,000.00.

MR. ARMSTRONG: I think the dollar value was roughly correct \$5,000,000.00.

THE CHAIRMAN: Gentlemen, I think perhaps this will be a good time to have a 10 minute break.

--- A short recess.



THE CHAIRMAN: Mr. Frawley?

MR. FRAWLEY: Thank you, Mr. Chairman.

I have only two or three questions. I will try awfully hard to ask them in less time than my friend took to ask his.

Mr. Hough, you make a couple of statements I would like to ask you about. On page 62, at the top of the page, you say:

"The sale of gas for interruptible industrial service at the rates proposed by Trans-Canada and the distributing utilities will be a profitable operation for all concerned. The full effect of these profits has been taken into account in computing the cost of service to some industrial customers."

Then on page 66 you say:

"The cost of serving gas on an interruptible basis, where the service can be discontinued during peak periods, includes no part of the capital costs of the pipe line. This is because these costs are unaffected by whether or not the interruptible service is provided."

Now, I don't know whether that question, Mr. MacKimmie, is for Mr. Hough or one of the other gentlemen, but I would like it explained, please, and expanded upon why you say that you attribute no part of the capital costs of the pipe line to the



sales of interruptible gas.

MR. HOUGH: Well, the basic method that we use in this study tries to limit the costs charged to any type of service to the costs that are actually created by that service. We state in our report that we assume that Trans-Canada actually provides no capacity for interruptible gas; that is, they don't deliberately build capacity into their pipe line in order to serve interruptible gas, and, consequently, all the capital costs are determined by the maximum day peak load, and for that reason we charge all the capital cost to the firm customers and none of it to the interruptible.

Now, that doesn't mean that in reality the interruptible customers don't share some of that cost, because we assumed that the prices that have been set for interruptible gas will remain in force and that actually those prices are not determined by cost of service but on some other basis: on what they can sell gas for on those conditions, on competitive prices and so on, and those prices are substantially higher than the out-of-pocket cost of supplying the interruptible gas, and the difference between the selling price and out-of-pocket costs we call the profit on the interruptible gas. But that profit doesn't go to the stockholders directly; we treat it as a credit of the cost of the firm service, and in



that way the firm service costs are reduced by virtue of having an interruptible load. It is just an approach to the development of costs; that is all you can say for it.

MR. FRAWLEY: You said a moment ago that Trans-Canada hadn't given any allowance -- didn't have any excess pipe line capacity for interruptible gas. Is that what you said, or something similar to it?

MR. HOUGH: Yes.

MR. FRAWLEY: Well, isn't it a little difficult to say that when we have evidence from Mr. Orme that perhaps more than one-third of Trans-Canada sales are going to interruptible sales?

MR. HOUGH: Well, we didn't use Mr. Orme's load figures; we used the ERC SRI load figures, and we limited the capacity to pipe line; that is, we just applied facilities enough to supply the firm load on that forecast.

MR. FRAWLEY: To me it seems a little difficult to make that assumption when you have a considerable, such a large estimate of the proportion of sales that are going into the interruptible market; I think his words were a third or more than a third in answer to the Chairman in Toronto.

MR. HOUGH: I know that he had a large interruptible load, but I don't know that he said



he was going to sell that load over peak periods. However, we made the assumption that they were not.

MR. FRAWLEY: I suppose there are other ways of calculating cost that would attribute some of the capital cost to interruptible sales?

MR. HOUGH: Yes, that is right.

MR. FRAWLEY: Do you know the method of allocation known as the Atlantic Seaboard method, if I have the correct name?

MR. HOUGH: I know the method generally used by the Federal Power Commission, which I think is the same.

MR. FRAWLEY: Would the Federal Power Commission method of allocation allocate some of the capital costs to interruptible sales?

MR. HOUGH: Yes, I think it would.

MR. FRAWLEY: I suppose it is fair to say that all of these methods are just as fair as the method of allocation used?

MR. HOUGH: Well, of course, it can't be denied that there is an arbitrary element to any cost of service allocation. You have to approach it on some theory or basis. We believe the method we used was less arbitrary and closer to the real facts as to what creates cost and what doesn't create cost than the method generally used by the Federal Power Commission. Now, that isn't



a criticism of that method, because they do use it for different purposes than we have in this study.

MR. FRAWLEY: Is there any name for your method? I am not being facetious. Has your method been used by anybody else in allocating cost of gas transmission lines?

MR. HOUGH: I think it is a very general method when you are simply trying to calculate costs. Usually when you talk about a cost of service study you are involved in some problem such as deciding what part of the cost certain individuals or certain types of customers will pay, and very often in the last analysis those allocations are arbitrary, they are just someone's judgment as to what they should be. We feel in this method we use for the purpose we are using it that it is less arbitrary than the other methods.

MR. FRAWLEY: Would you please turn to page 86 and to table 22 of that page, and my question is, what is the reason for giving the Emerson load part of the benefit from the sales of interruptible gas in Canada? Before you answer that question, will you let me tell you that my instructions are that the table shows that you have for Emerson a 97.9 per cent load factor, that you have 29.8 cents as the total cost of service, and therefore I put it to you that the credit of 2.8 cents per Mcf is equivalent to increasing the pipe



line load factor of 97.9 per cent to 97.9 times 29.8 over 27, or a load factor of 104 per cent. In the light of that calculation, would you mind explaining why you showed that credit?

MR. HOUGH: Well, we were not, in this cost of service study, trying to determine what the cost of service to the Emerson off-take is; we were focusing our attention on the cost of serving the Eastern Canadian market, and we accepted the price of 27 cents as an established fact and simply used that revenue at the 27-cent price in calculating the total deduction from total operating costs in order to find out what was left for the Canadian market to pay. That 2.8 cents is simply an adjustment to bring our calculated figure down to the 27 cents, which is the contract price.

MR. FRAWLEY: But it is true that, theoretically, that net cost of 27 cents for Emerson gas does represent a load factor of 104 per cent?

MR. HOUGH: Yes.

MR. FRAWLEY: And that makes a little difference?

MR. HOUGH: I don't think so. We were just accepting that as a factor we had to consider. We assumed that would be the price, and therefore the Canadian market would pay the rest of the cost.

THE CHAIRMAN: You do things in a big



way out West, Mr. Hough.

MR. FRAWLEY: I have one question for you, Mr. Clark. My friend Mr. Pattillo was talking to you about the control of the price of gas and of oil being in the hands of the same producer, and while, with great respect, I didn't entirely follow my friend, I want to put something to you and just ask you a question. Do you understand the economics of the manner in which the field price of crude oil in Alberta is fixed?

MR. CLARK: I haven't studied it, sir.

MR. FRAWLEY: I put it to you that it is fixed by the refiner at Sarnia who puts Illinois base and crude at Sarnia and then deducts transportation back to the wellhead. Do you understand that generally?

MR. CLARK: Yes.

MR. FRAWLEY: If that is so, I put it to you that Shell Oil Company, who has no refinery in Sarnia, and none in Toronto as yet, would have nothing to do with fixing the price of that oil. But I want to read to you from page 185 where you make this statement -- and that, by the way, was just by way of a preliminary observation --

"Estimates made by major refiners in Eastern Canada indicate that the price of fuel oil would be allowed to drop approximately 15 cents per Mcf equivalent from



1957 prices before equipment would be installed to reduce fuel oil yields. It is therefore quite possible that the refiners in Ontario and Quebec would reduce the price of fuel oil as required in order to prevent natural gas from capturing much of the HFO market."

Now, going to the field price in Alberta, let's see how potent that is.



Taking 10 3/4 cents as the present gathered price in Alberta and deducting the gathering price, my instructions are that you would immediately reach a wellhead price of 6 to 7 cents. Do you see much leeway for the gas producer fixing his price to fight that fuel oil, that market in eastern Canada?

MR. CLARK: I would hardly think that there would be any room for the adjustment of the fuel price.

MR. PATTILLO: What is the price at Peace River?

MR. FRAWLEY: 10 3/4 cents. That is what my friends at Trans-Canada are paying. They are going to do much better later on, thanks to my friend, Mr. MacKimmie -- at least I hope so. That is all the questions I have, Mr. Chairman.

MR. COMMISSIONER HARDY: Mr. Chairman, I would like to ask the group if we could get for a few minutes the fact that there appears to be a dispute between certain company interests here, and look at the problem that is really facing this Commission within its terms of reference. In this case I think the case of Trans-Canada and an additional export permit is an excellent example of the type of problem that can come up, and we under our terms of reference, as I understand it, are going to be required to make some recommendations



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concerning how it would be handled. In the case of Trans-Canada, as far as their customers are concerned, they have been placed in a preferred position for the supply of gas, and then a new applicant comes along and he has to put his case across to justify his permit, keeping in mind that preferred position of previous permits. In the United States, I understand, that problem would always be under the jurisdiction of the Federal Power Commission; is that right?

MR. CLARK: So long as it involves Interstate movement, it would be under the Federal Power Commission.

MR. COMMISSIONER HARDY: And they would take into account the local interests such as we might have. Say we might have here, with the Ontario and Quebec customers opposed, say, to the interests of producers in Alberta.

MR. MacKIMMIE: I am sure you would not mind if Mr. Clark conferred with the group.

MR. COMMISSIONER HARDY: Not at all.

MR. CLARK: I am afraid I will have to ask you to repeat the question and maybe rephrase it so that we could try it again. We want to be sure of the status.

MR. COMMISSIONER HARDY: It seems to be obvious that there is a potential interest of the customers of Trans-Canada here in eastern Canada that



is at variance with the interests of the producers in Alberta or that it could be because just for the simple reason that if the distributing companies down here take the position that we are entitled to all the gas that we want to decide how we will sell it, then it might prevent some of that gas from being sold to an export market that would give the producer a greater amount of income, so that the interests of the Alberta producer might not be identical with the interests of the Ontario consumer. Would the Federal Power Commission adjudicate on those various interests under similar circumstances in the United States?

MR. CLARK: I would think so. I know of cases of coal producers taking exception to pipelines.

MR. COMMISSIONER HARDY: They have not paid attention to them?

MR. CLARK: They have nevertheless listened to them and, if they have listened to them, I assume it is in their province?

MR. COMMISSIONER HARDY: You say they listened to the case for a competing source of energy as well as the case for competing interests?

MR. CLARK: Yes, sir.

MR. COMMISSIONER HARDY: Thank you. That is all.

MR. COMMISSIONER BRITNELL: I have simply one point, a rather marginal one. At the top of page 213, there is something that Mr. Clark



read, speaking of interruptible gas:

"In this 10-state area, several states do not permit interruptible industrial sales; as a result, firm industrial sales are inordinately high in these states".

I wonder whether Mr. Clark would tell us what these states are.

MR. CLARK: The only state I can cite offhand is Pennsylvania and Ohio.

MR. COMMISSIONER BRITNELL: That would hardly be several, would it?

MR. CLARK: To tell you the truth, I knew of the one or two out of the ten. I do not know about the other eight, whether they do or do not. The statistics in the American Gas Association are not broken down by states normally between firm industrial and interruptible. So this cannot be easily checked.

MR. COMMISSIONER BRITNELL: I thought it would be rather interesting if there were several, and I would hardly think that two constituted several.

MR. CLARK: These are two states with large use and certainly would affect the ratios for the total 10-state area under consideration.

MR. COMMISSIONER BRITNELL: I wonder whether you could find out whether this statement could still stand in that sense that you could add



anymore states to it?

MR. CLARK: I will certainly make every effort to find out.

MR. COMMISSIONER BRITNELL: Going on from that, do you know whether natural or other storage is available in each of these states and that that might be the reason why they do not allow interruptible?

MR. CLARK: Storage, I believe, is available in the States. I do not know if that is the reason why it is not allowed, but storage is available.

MR. COMMISSIONER BRITNELL: It might conceivably be the coal operators having some interest?

MR. CLARK: Yes.

MR. COMMISSIONER BRITNELL: Thank you, Mr. Chairman.

MR. COMMISSIONER LADNER: Why do they refuse to allow the sale of interruptible gas?

MR. CLARK: I am afraid I really do not know, sir.

THE CHAIRMAN: Thank you very much, gentlemen. Through you, Mr. MacKimmie, I want to thank Professor Armstrong, Mr. Clark, Mr. Hough and all your group. In spite of all the, shall I say, temporary difference of opinion, I still repeat what I said, that your brief is a most valuable addition to the records of this Commission.



MR. MacKIMMIE: I would be delighted to know that we did not waste your time.

THE CHAIRMAN: No. I will say that during the last two days of our hearings everybody is getting a little tired -- that is understandable -- but I want you to have no feeling whatever that it is a waste of time. So far as the records of the Commission are concerned, I am sure that Trans-Canada appreciate the spirit in which you gave the brief, and we do as a Commission.

MR. MacKIMMIE: Thank you, Mr. Chairman.



Submission of

UNION GAS COMPANY OF CANADA LIMITED

APPEARANCES:

Mr. David P. Rogers	- President
Mr. Thomas Weir	- Vice-President and General Manager
Mr. F.R. Palin	- Assistant General Manager and Secretary Treasurer.

THE CHAIRMAN: Mr. Pattillo?

MR. PATTILLO: Mr. Chairman, we now have the submission of the Union Gas Company of Canada Limited, which is in two documents. I am proposing that the blue document, which is the main brief, be marked M-21-3 and that the grey-covered book be marked M-21-4.

---EXHIBIT NO. M-21-3: Blue-covered brief submitted by Union Gas Company of Canada Limited.

---EXHIBIT NO. M-21-4: Grey-covered brief submitted by Union Gas Company of Canada Limited.

MR. PATTILLO: Mr. Rogers, Mr. Weir and Mr. Palin are here from the company, and I will ask Mr. Rogers as President of the company to introduce the group.

MR. ROGERS: I would like to introduce my associates who are here today representing the



Union Gas Company. On my immediate left is Mr. Thomas Weir, who is the Vice-President and General Manager of the Company, and Mr. Palin, who is Secretary-Treasurer and Assistant General Manager.

THE CHAIRMAN: Thank you, Mr. Rogers.

MR. ROGERS: Mr. Palin will be submitting the brief.

THE CHAIRMAN: Fine. I think there might be some of it that you would suggest we take as read as we go along. I will leave that to your judgment.

MR. PALIN: Yes, sir. I might just mention what had occurred to me with regard to various companies that will be mentioned here that I deal with the operations of the companies, as to what they do, and that would get over to page 8, and then there are several pages from page 9 to page 20 that really deal with the details of these schedules.

I. History and Operations of the Company and its subsidiaries: Union Gas Company of Canada, Limited (Union) was incorporated under the laws of the Province of Ontario on December 11, 1911.

Union and its subsidiaries are engaged in purchasing, producing, storing, transmitting and distributing natural gas in numerous municipalities in South-western Ontario. At the present time Union and its subsidiaries distribute gas directly to approximately 196,000 customers and also supply nominal volumes of gas to other distributors for re-sale. Operations



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are carried on in the following fifteen counties in Ontario, which are hereafter referred to collectively as the franchise area: Essex, Kent, Lambton, Middlesex, Elgin, Huron, Perth, Waterloo, Oxford, Brant, Wellington, Haldimand, Norfolk, Halton, Wentworth.

The present overall population of the franchise area is approximately 1,700,000. The map at tab 13 shows the extent and location of the main transmission lines of the companies and the location of the major markets served.

If we look at the map at tab 13, it would give a quick indication of the area in which the company and its subsidiaries carry on operations. Starting at the lefthand side of the map, from Windsor, and working east to Hamilton, Burlington and Oakville on the northwest shore of Lake Ontario, and then directly south from that point to the Niagara Peninsula, you will notice that there is only a green line through the Niagara Peninsula and that the transmission line of Niagara Gas Transmission Limited is the connection with the Union Company. So the Union's franchise area, you might say, ends at the Dunnville-Port Maitland area at the lower righthand corner of the map and goes directly north of that to Acton and Georgetown and then directly west again to Lake Huron and the projected line now in course of construction to Goderich. So, generally speaking, the Union Company and its subsidiaries serve that whole section of southwestern Ontario with the exception of the Niagara Peninsula.



MR. PALIN: Actually they are just the other way around; Union subsidiaries do not serve the Niagara Peninsula as such. That gives you some idea of the area covered by the operations of the Union Company and within that area there are other independent distributors which I referred to briefly. That covers fifteen counties in which we are presently operating.

In all some 5,315 miles of gathering storage, transmission and distribution lines (exclusive of service laterals) ranging up to 26 inches in diameter are owned and operated by the companies in addition to the extensive facilities required for the production, storage, compression and measurement of gas. The total gas plant facilities of the companies (exclusive of the properties of Hamilton By Product Coke Ovens, Limited) are carried on the books at a gross cost of approximately \$90 million and are constantly being added to. Union has the following subsidiary companies:

A - Wholly-Owned

- (i) City Gas Company of London
- (ii) Ontario Natural Gas Storage & Pipelines Ltd

B - Partially-Owned

United Fuel Investments, Limited; a holding company with the following wholly-owned subsidiaries:

- (i) Hamilton By Product Coke Ovens, Limited
- (ii) United Gas Limited, of which company United Suburban Gas Company, Limited is a wholly-owned subsidiary.



The operations of the company and its various subsidiaries are referred to briefly as follows:

Union Gas Company of Canada, Limited:
Union owns all of the outstanding shares of City Gas Company of London and of Ontario Natural Gas Storage and Pipelines Limited. It also owns 89,902 of the outstanding 90,000 common shares of no par value (the voting stock) of United Fuel Investments, Limited. In addition to the common shares United Fuel Investments, Limited also has outstanding 90,000 Class A 6 per cent cumulative redeemable preferred shares par value \$50 each, and 69,689 class B non-cumulative preferred shares, par value \$25 each, of which preferred shares none are owned by Union.

Union is engaged in the purchase, production and transmission of natural gas and in the distribution of natural gas to approximately 128,000 customers. In April, 1958, Union acquired all of the natural gas properties of Dominion Natural Gas Company, Limited in Ontario, exclusive of those situated in the counties of Lincoln and Welland, and the properties so acquired are incorporated into and being operated as part of the Union Company system.

City Gas Company of London: This company is a distribution company engaged in the



distribution of natural gas to approximately 25,000 customers in the City of London and in the Townships of Westminster and London in Middlesex County.

City Gas Company of London purchases all of its requirements of gas for re-sale from Ontario Natural Gas Storage and Pipelines Limited.

Ontario Natural Gas Storage and Pipelines Limited: This company (Ontario Storage) was incorporated in 1953 as a wholly-owned subsidiary of Union in anticipation that the future large-scale gas storage and transmission activities contemplated could be carried out better through a separate company. Ontario Storage is engaged entirely in wholesale operations and does not make any direct sales to the public.

In December, 1957, Union sold to Ontario Storage its underground storage facilities (including compressor station and base pressure gas) in Lambton County, and its 16-inch diameter pipeline, a compressor station and other facilities required to transport from a point on the Detroit River to the storage area, natural gas imported by Union from the United States. The majority of these facilities are also required to transmit gas from the storage area to Windsor and other markets during periods when sufficient gas to meet the requirements of those markets is not available from the United States. Ontario Storage also acquired



from Union the latter's inventory of gas held in underground storage for current sale, certain inventories of materials and supplies and contracts for the sale and purchase of gas. All of the properties referred to were sold by Union to Ontario Storage at book value, being cost less applicable depreciation.

Ontario Storage has accepted an assignment from Union of an agreement between Trans-Canada Pipe Lines Limited and Union Gas Company of Canada, Limited, as amended, dated January 18, 1955 under the terms of which Union agrees to purchase from Trans-Canada annual volumes of natural gas ranging up to 64 billion cubic feet for a primary term of twenty years from the date of first deliveries of gas under the contract. Deliveries of gas under this contract are to be made to Ontario Storage at a point near Oakville. The larger portion of the gas will be received in the summer months and the excess over immediate requirements placed in underground storage. It is anticipated that deliveries of gas under this agreement will commence on or about November 1, 1959.

Ontario Storage has also agreed to purchase from Union all gas imported from the United States by Union under two contracts between Union and Panhandle Eastern Pipe Line Company. The first of these contracts, which provides for the



importation of 5.5 billion cubic feet per annum during the summer months still has approximately twelve years to run. The second contract, under which deliveries of gas commenced in November, 1956, provides for the delivery and receipt of increasing annual volumes of gas ranging up to 15.5 billion cubic feet in 1961 and subsequent years. Deliveries of gas under this second contract will cease one year after gas is available to Ontario Storage under the January 18, 1955, agreement with Trans-Canada.

Ontario Storage has completed contracts for the sale of gas on a wholesale basis with Union Gas Company of Canada, Limited, City Gas Company of London, United Gas Limited and the Public Utilities Commission of the City of Kitchener. A contract for the sale and purchase of gas had also been entered into with Dominion Natural Gas Company, Limited and that contract has now been assigned by Dominion to Union.

In addition to its operations of purchasing, storing and transmitting gas on its own account, Ontario Storage is also engaged in the storage, transmission and exchange of gas on behalf of other companies.

By agreement with The Consumers' Gas Company, Ontario Natural, for a service charge, will store gas for Consumers' Company. Under the



terms of this agreement Ontario Storage will receive during the summer months at the eastern terminus of its 26-inch transmission line, gas owned by The Consumers' Company in excess of the daily requirements on its system and will transmit this gas to the underground gas storage pools in Lambton County, where it will be stored for return to The Consumers' Company as required.

Under the terms of a gas exchange agreement, Ontario Storage, in consideration of a service charge, is lending limited quantities of gas to Trans-Canada Pipe Lines Limited for the purpose of market build-up in Eastern Ontario and the City of Montreal prior to the availability of Western Canada natural gas through the Trans-Canada pipe line for this purpose and, if required, until November 30, 1959. The agreement requires that gas lent to Trans-Canada be returned over a three-year period from the time Western Canada gas is available from Trans-Canada at the junction of the facilities of Ontario Storage and Trans-Canada.

United Fuel Investments, Limited: This company does not carry out any operations but is entirely a holding company owning all of the outstanding capital stock of United Gas Limited and Hamilton By Product Coke Ovens, Limited.

United Gas Limited and United Suburban Gas Company, Limited: United Gas Limited owns all of the



capital stock of United Suburban Gas Company, Limited. These companies are engaged in the distribution of natural gas in the City of Hamilton, the Towns of Oakville, Burlington, Dundas, Georgetown, Milton and Acton and other areas in the Counties of Wentworth and Halton. At the present time these companies serve some 43,000 customers throughout their franchise areas. Prior to 1955 both companies were engaged in the distribution of manufactured gas but as supplies of natural gas became more readily available, in that year a programme of conversion to natural gas was commenced and by April of 1958 the entire service areas of both companies had been so converted.

Under the terms of a contract dated November 4, 1955, United Suburban Gas Company, Limited is purchasing substantial volumes of natural gas from Niagara Gas Transmission Limited. This gas is being utilized on the system of United Gas Limited and United Suburban Gas Company, Limited.

As at December 2, 1957, United Gas Limited entered into a contract with Ontario Storage for a supply of gas for the systems of United Gas Limited and United Suburban Gas Company, Limited. The contract extends for a primary term of twenty years from January 1, 1958. When Western Canada gas is made available by Trans-Canada Pipe Lines



Limited at the point of juncture of the facilities of Ontario Storage and Trans-Canada, receipts of gas under the contract of November 4, 1955 with Niagara Gas Transmission Limited will cease and thereafter, with the exception of a nominal volume of natural gas purchased locally, United Gas Limited and United Suburban Gas Company, Limited will receive their entire natural gas requirements from Ontario Storage.

Hamilton By Product Coke Ovens, Limited:
This company is engaged in the production of metallurgical coke and other by-products of coal at its plant situated on the harbour in the City of Hamilton. The manufacturing facilities of this company were the main source of gas supply for the manufactured gas formerly distributed by United Gas Limited and United Suburban Gas Company Limited. The coke manufacturing facilities of the company will continue to operate to produce high quality metallurgical coke to meet as far as possible the market demands for such coke.

During their immediately past fiscal years the combined natural gas sales of Union and its subsidiaries and of Dominion Natural Gas Company, Limited (manufactured gas sales of United Gas Limited and United Suburban Gas Company, Limited converted to natural gas equivalent) were approximately 21,900,000 Mcf.



II

Future Expansion and Gas Requirements:

During the fiscal year ended March 31, 1957 Union Gas Company of Canada, Limited and its subsidiaries spent on plant extensions and enlargements a total of \$ 6,700,000

During the fiscal year ended March 31, 1958 those companies expended for that purpose \$29,100,000

An appropriation has been made for such expenditures during the fiscal year ending March 31, 1959, of \$18,000,000

The above expenditures and appropriation are in addition to the expenditure by Union in April, 1958, of approximately \$15,250,000 in the acquisition of properties of Dominion Natural Gas Company, Limited.

With the increased supplies of natural gas now assured to Union and its subsidiaries under the contracts already referred to and from local sources, both company-owned and under contract, those companies were able to raise the necessary capital required to construct the major portion of the facilities needed to deliver to and distribute in all markets served, under all contemplated operating conditions, the volumes of gas becoming available. This expansion programme will continue to the extent necessary to reach all



prospective customers within economic range of the companies' present and projected facilities, and as deemed feasible in the light of gas supplies available over a long term period.

Studies have been completed with a view to determining the ultimate possible annual gas demand in the companies' franchise areas (i.e. the 15 counties in which operations are now being carried on) over the next thirty years.

The attached schedules, tabs 1 to 11 inclusive, show the methods used and assumptions made in arriving at such annual estimates. Schedule 8 (column 4) shows the volumes of gas which might be required on the companies' systems while Schedule 11 indicates the peak days resulting from the handling of such volumes of gas.

The various schedules are now referred to and explained in limited detail as follows:

Schedule 1

Actual and projected population of the 15 counties in which operations are carried on by Union and its subsidiaries: The estimates shown on Schedule 1 are a consolidation of those prepared for each of the 15 counties. The figures for the periods 1931 to 1956 inclusive, are as published in the 1956 edition of Economic Survey of Ontario. The estimated future population of each of the counties was determined by a study of past population



growths, by taking into consideration the division of the present population as between urban and rural, and the incidence of industrial and commercial activities. The general assumption was also made that in most counties, especially those which have shown a marked increase in population during recent years, the future percentage rate of population growth will be somewhat reduced from that experienced in recent years.

Schedule 2

Estimated population of, and number of possible residential gas outlets requesting service from Union Gas Gas Company of Canada, Limited and its subsidiaries in, the 15 counties in which operations are carried on by the said companies

This schedule is based on the overall population estimates of 15 counties as indicated in Schedule 1. However, the possible gas service area population estimates reflect reductions from the overall population figures by -

(a) the populations of certain urban areas served by other distributors in the counties in which Union and its subsidiaries operate or where, mainly for economic reasons, no gas is presently being served nor is such service contemplated by Union;

(b) rural population not served or to be



served by Union or its subsidiaries because the widespread distribution of such population does not warrant the extension of gas distribution systems to render service.

Column 5 of Schedule 2 shows the estimated population to be within the service area of Union and its subsidiaries, and on the basis of 3.5 persons per family, column 6 shows the estimated number of families to be within the service area.

The estimated number of residential meters to be on the lines of Union or its subsidiaries, as shown in column 8, represents the consolidation of estimates made for each of the fifteen counties where operations are carried on. There is a wide variance in the present saturation of residential meters by counties because of the fact that natural gas service has been available for a great many years in some counties, for only a relatively short period or on a restricted basis in others, while in some instances natural gas service is only now being made available.

It is generally assumed, however, that if adequate supplies of gas are available, ultimately natural gas will be utilized to some degree by approximately 85 per cent of the families in the service area (column 7). A few of the counties in which natural gas service has been available for forty or more years have already reached or are



close to such saturation.

Schedule 3

Possible demand on Union Gas Company of Canada, Limited and its subsidiaries for gas for residential uses in the 15 counties in which operations are carried on by the said companies:

This schedule assumes that the number of residential meters shown in column 8 of Schedule 2 will be attached to the lines of Union and its subsidiaries.

The average base load consumption per residential meter (column 3) is estimated to become 30 Mcf. This is based on the current experience of Union. However, during the early years of this study the average base load consumption is slightly less than 30 Mcf because of the recent conversion of certain important markets from manufactured to natural gas where, on a natural gas equivalent basis, the average annual consumption per residential meter for base load purposes was less than 30 Mcf. It is estimated that by the end of a 10-year period, the average base load consumption of these meters converted from manufactured to natural gas will also be 30 Mcf.

The estimated average annual space heating consumption per residential meter is based on a consumption of 22 cubic feet per degree day. While there is a variation in the number of degree



days as between markets on the Union system the large majority of the customers are in areas where the normal number of degree days per annum is between 6600 and 6700. After making provision for the colder temperatures prevailing in the northern fringe of the market area, the average consumption per residential meter for space heating purposes for the fifteen county area is estimated at approximately 148 Mcf per annum.

As natural gas has become more plentiful in recent years in the older sections of Union's markets, more and more people have been turning to this type of fuel for their entire space heating requirements. Additional space heating load is constantly being obtained through customers who formerly used gas only for other than space heating purposes, and in addition Union and its subsidiaries are obtaining requests for space heating gas from a high percentage of the new homes being erected in their franchise areas.

On the basis of past experience, given an abundant supply of natural gas which can be offered at rates as competitive as those now prevailing, it is estimated that Union and its subsidiaries will eventually be serving natural gas to 73 per cent of their customers for their entire space heating requirements.

Based on the assumptions referred to herein,



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and on the past experience of Union, it is estimated that the future demands on Union and its subsidiaries for natural gas for residential requirements could reach the volumes shown in column 9 of Schedule 3.



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Schedule 4 - Possible demand on

Union Gas Company of Canada, Limited and its subsidiaries for gas for commercial uses in the 15 counties in which operations are carried on by the said companies: The past experience of Union has been that the number of commercial meters on the lines is approximately 10% of the number of residential meters. It is therefore assumed that the number of commercial meters on the lines of Union and its subsidiaries will, with adequate supplies of natural gas available, reach a total of 10% of residential meters and then, because of the number of customers using natural gas for tobacco curing purposes in a few counties, will actually exceed this ratio by a small margin. On this basis, it is estimated that the number of commercial meters to be on the lines of Union and its subsidiaries will be as shown in column 2 of Schedule 4.

The average consumption per commercial meter for other than space heating purposes in counties where natural gas is used extensively for tobacco curing purposes is estimated at 300 M.C.F. per annum, while in all other counties, and based on a study made by Union, such average annual consumption per meter is estimated at 108 M.C.F. The composite average consumption for all 15 counties is as shown in column 3 of Schedule 4. The slight



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decrease in average consumption per account over the future years is due to the assumption that the number of additional commercial meters attached for other than tobacco curing purposes will be greater than those installed for such purpose.

As natural gas becomes more plentiful its use for space heating purposes in commercial establishments is increasing. With ample supplies of gas assured and because of the large unsatisfied market for natural gas for such use in many areas, it is anticipated that sales of gas for commercial space heating will be expanded, and that the percentage of commercial customers using gas for their entire space heating requirements will be as shown in column 6 of Schedule 4, resulting in the number of commercial space heating customers on the lines being as shown in column 5 of that schedule.

A study made by Union indicated that the average commercial space heating customer uses approximately 300 M.C.F. per annum for such purpose and that volume has been applied for the purposes of this study.

Based on the assumptions referred to herein and on the past experience of Union, it is estimated that the future demands on Union and its subsidiaries for natural gas for commercial requirements could reach the volumes shown in column 9 of Schedule 4.



Schedule 5 - Estimated market for

firm industrial gas sales available in 15 counties served by Union Gas Company of Canada, Limited and its subsidiaries: The estimated annual volumes of sales on a firm basis for industrial purposes as shown on Schedule 5 for the years 1959 to 1964 inclusive, are based on the current annual volumes of such sales adjusted to reflect the increasing load as estimated by industrial sales personnel. For 1965 it is estimated that the firm industrial sales load will increase 3% over the previous year, or by 175,000 M.C.F. For the purpose of this schedule it is assumed that firm industrial sales volume will increase by 175,000 M.C.F. in each year after 1965, which will result in a constantly decreasing percentage increase per annum.

Schedule 6 - Estimated volumes of gas

required for sales to other distributing companies, commissions, etc., on a wholesale basis for resale: Union is currently selling gas on a wholesale basis for resale to the following:

Public Utilities Commission of the City
of Kitchener
Central Pipeline Company Limited
Beachville Natural Gas Syndicate
United Development Company Limited

In addition, negotiations are being carried on with a view to selling gas to Norotto Gas Company Limited.

Based on existing and pending contracts,



the probable population and market growth in the areas served and the reduction in volumes of gas being made available to the above-mentioned companies from other sources, annual volumes of wholesale natural gas sales by Union and its subsidiaries are estimated to be as shown on Schedule 6.

Schedule 7 - Possible demand for gas on Union Gas Company of Canada, Limited and its subsidiaries by all classes of customers in the 15 counties in which operations are carried on by the said companies: This schedule is merely a summary of the possible demands on the companies by all classifications of customers and as detailed on Schedules 3, 4, 5 and 6.

Schedule 8 - Schedule showing possible annual demands for gas on pipeline system of Union Gas Company of Canada, Limited and its subsidiaries and portion thereof which may be acquired from Trans-Canada Pipe Lines Limited: The possible annual volumes of gas required on the entire system are set out in column 4 of this Schedule 8 and comprise the total sales volume (column 2 as derived from Schedule 7), plus an allowance for company use, unaccounted for, unbilled, etc., gas (column 3).

Column 5 of Schedule 8 shows the estimated volumes of gas to be available to Union and its subsidiaries from other sources, mainly under existing contracts with independent producers



and suppliers and from Union's own local production sources. This column 5 also reflects the net changes in volumes of gas placed in and withdrawn from storage as shown on Schedule 9, column 12.

Column 6 of Schedule 8 shows the estimated annual volumes of gas to be received under the January 18, 1955 agreement between Trans-Canada Pipe Lines Limited and Union Gas Company of Canada, Limited, as amended, and as assigned by Union to Ontario Natural Gas Storage and Pipelines Limited on December 2, 1957. The volumes shown are based on the assumption that deliveries of gas under this agreement will be made over the primary term of the agreement estimated to be a period of 20 years commencing November 1, 1959.

Column 7 of Schedule 8 shows the additional volumes of gas required to meet the possible demand as shown in column 4 over and above (a) the volumes estimated to be available from sources other than Trans-Canada as shown in column 5 and (b) the volumes available from Trans-Canada during the primary term of the said agreement of January 18, 1955. It is assumed that these additional volumes of gas will be obtained through the extension of the term of the January 18, 1955 agreement beyond the primary term thereof (as provided for in the said agreement) and/or through the execution of a further agreement between Trans-



Canada and Ontario Natural Gas Storage.

Column 8 of Schedule 8 shows the total volume of gas required from Trans-Canada based on the assumptions made in this schedule.

Schedules 9 and 9A - Schedule showing possible total annual volumes of gas to be required and to be received or produced by Union Gas Company of Canada, Limited and its subsidiaries, and the resultant net change in volume of gas held in underground storage: The details of this schedule are explained, where required, in Schedule 9A, under tab 9.

Schedule 10 - Schedule showing maximum sales demand in M.C.F. on peak day, on which the temperature is assumed to be - 5⁰F., if estimated sales volumes as shown on Schedule 7 are to be met:

The notes included on this schedule explain in detail the factors used in arriving at the estimated maximum peak day for sales only (i.e., exclusive of storage gas returned to The Consumers' Gas Company).

While column 14 shows the maximum peak day demand, the hourly demand rate would probably be approximately 20% higher.

Schedule 11 - Schedule showing maximum daily demand on system on basis of possible sales demand per Schedule 9, plus maximum demand obligations under agreement of December 20, 1957 between



Ontario Natural Gas Storage and Pipelines Limited
and The Consumers' Gas Company: Column 4 of this
schedule indicates possible peak day demand on
the system based on -

- (a) Maximum peak day demand generated by sales
as shown in Schedule 9

plus

- (b) Maximum daily delivery obligations under
agreement with The Consumers' Gas Company.

In considering the findings shown by
the attached schedules the following factors
should be kept in mind:

- a. - Union and its subsidiaries do not presently
have available, under contract or otherwise,
sufficient gas to meet the indicated demand
after 1973. However, as the demand actually
increases, steps will be taken in an endeavour
to acquire the required additional volumes
of gas from any available source.
- b. - If the companies are to meet any of the demands
in excess of those for which gas is already
available, additional volumes of gas must be
made available in sufficient quantities to
take care of the additional load for a period
of at least 20 years. In addition, volumes
of gas required to serve the then existing
load should be assured for a period of at
least 20 years from the date on which additional



volumes are required.

- c. - The attainment of the projected volumes of sales is dependent on the retail price of gas in the franchise area maintaining approximately its present competitive position with other fuels and at the same time enabling the distributing companies to earn sufficient to cover all costs of operations and permit reasonable returns to the investors.
- d. - In arriving at the estimated volume of industrial gas sales, (Schedule 5) only firm gas sales were considered. However, from surveys made over recent years it is quite apparent that there is a market for interruptible gas sales in the territories served by Union and its subsidiaries. On an annual basis such sales could approximate 40 to 50 billion cubic feet. It is therefore reasonable to assume that the market for such sales during the off-peak period could be 20 to 25 billion cubic feet per annum.

A very large portion of these sales could only be made at prices approximating the prices to be paid Trans-Canada Pipe Lines Limited for gas by Ontario Storage. In addition, the volumes of gas becoming available to Union and its subsidiaries in future years under existing contracts leave little if any margin for such



sales except in the next few years. We also understand that Trans-Canada has little if any capacity remaining in its present facilities to permit it to enter into contracts for the sale of special rate interruptible gas to Ontario Storage. However, for the first few years after Trans-Canada gas becomes available Union and its subsidiaries will probably have a limited amount of gas available to service a portion of the interruptible load.

- e. - Surveys made for Union and its subsidiaries indicate that there is a fairly extensive area north of its present franchise area which, while marginal at the moment, might in the near future justify the extension of facilities by Union and Ontario Storage to serve. It is estimated that the fifth year sales in this area would approximate 2 billion cubic feet while the ultimate annual sale volume would be 4 billion cubic feet. The total estimated gas requirements of Union and its subsidiaries (Schedule 8, column 4) do not make any provision for the servicing of this load.

III - Underground storage of gas:

The utilization of underground gas storage facilities is of considerable convenience and value to companies having such facilities available in close proximity



to major markets. Through their use, the operator of the storage is able to purchase supplies of gas during off-peak periods which otherwise would not be available, and to purchase gas on a more economical basis than if deliveries from the supplying company are taken only as required by the ultimate consumer.

Union and its subsidiaries are fortunate in having such underground facilities available and in operation in Lambton County. Through their operations Union has been able to import from the United States during the summer months over the past several years substantial volumes of natural gas which otherwise would not have been available and could not have been marketed by Union in the summer months.

Schedule 12 shows certain particulars of presently operating and potential underground storage areas, as follows:-

- a. - Lines 1 to 5 inclusive, give particulars of four pools presently designated as storage areas, controlled by and in actual use for storage purposes by Ontario Storage.
- b. - Line 6 gives particulars of an additional pool, Waubuno, already designated as a storage area, and owned jointly with Imperial Oil Limited. A considerable volume of gas has already been produced from this pool and it is anticipated that it will be owned solely by



Ontario Natural Gas Storage by December of 1959, by which date it will be available for storage purposes.

- c. - Lines 8 and 9 give particulars of two pools owned by Union not yet designated for storage but which will be available for future storage operations. Drilling is continuing in these pools to make them more suitable for storage operations. Only a token amount of gas has as yet been produced from these pools.
- d. - Line 11 shows certain combined statistics of the seven pools already mentioned which are presently being, or which eventually will be, operated by Ontario Storage or Union for storage purposes.
- e. - Lines 12 to 14 inclusive, give particulars of two pools owned by Imperial Oil Limited from which Union is currently purchasing the gas production and which it is considered would be suitable for storage purposes if and when required.

In this Schedule 12, the word "cushion" refers to base pressure gas in underground storage held to maintain operating wellhead pressure. For the past few years, Union, and now Ontario Storage, have been operating all underground storage capacity required to store natural gas made available to them. Additional



storage capacity will be made available and put into operation by those companies to the extent available as such additional capacity is required.

When deliveries of gas from Trans-Canada Pipe Lines Limited to Ontario Natural are commenced under the terms of the agreement between those two companies, Trans-Canada will obtain direct benefit from the availability of storage through:-

- (i) Having contracted to deliver the larger portion of the gas to be delivered under the said Ontario Natural, Trans-Canada contract during the period April 1 to November 1 in each year, a very large amount of which gas will be placed in underground storage to meet winter peaks;
- (ii) Having the right, with certain limitations, to cease deliveries of gas to Ontario Storage on days of peak demand on the Trans-Canada system, thus making more gas available on such days to other pipeline customers. At such times the demands on Ontario Storage will be met from storage;
- (iii) The Consumers' Gas Company having contracted with Ontario Storage for storage of large volumes of gas to be purchased from Trans-Canada during the summer months.



In addition to the pools listed on Schedule 12, there are other natural gas pools or formations in Southwestern Ontario which might also be adapted for storage purposes. The two most prominent of such pools are the Seckerton and Corunna, the gas produced from which is currently being purchased by Union. While the combined capacities of these two pools at original pressure was approximately 17 billion cubic feet, because of the fact that oil is being produced with the gas and the pools have not as yet been definitely delineated, the potential efficiency of their operation as storage areas has not as yet been determined.

IV - General Comments: The following general comments and views on matters which it is understood the Commission are specifically considering are now presented:

1. The wisdom or otherwise, from a national point of view, of the sale of firm and interruptible gas to industry: If the sale of gas to industry on a firm or interruptible basis is disregarded, by far the largest demands for natural gas on distribution companies is for space heating purposes. To satisfy this demand it is necessary for the distributors to design their facilities to meet the resultant peak load on the coldest day in the winter and at the same time give adequate



service to all customers. This results in high peak conditions with resultant low load factors and increased distribution costs per M.C.F.

If the load factor on the system can be improved there is a resultant decrease in unit distribution costs with financial benefit to both the consumer and the distributor. One method of increasing the load factor is by supplying industrial gas on a firm basis. This is usually high load factor business, as weather conditions in most cases have little effect on industrial load. While it is true that firm industrial sales increase the winter peaks, nevertheless they do provide a source of revenue in periods when the space heating load does not tax the facilities of the distributor. Such sales also have a levelling effect on the overall load factor. Generally, distributors buy gas from their pipeline suppliers on a demand-commodity rate basis and in such cases the year-round sale of firm industrial gas enables the distributor to obtain a lower average annual price per M.C.F. from the supplier.

The use of natural gas in certain of their operations by some industries is considered essential. Accordingly, the availability of natural gas could have a great bearing on whether or not an industry established itself in the country.



Thus it would appear that the sale of firm industrial gas could result in lower rates to the consumer, improves the load factor and revenues of the distributor, enables the pipeline company to operate its facilities closer to capacity and enables the producer to produce his wells at a more constant flow. In addition, firm industrial gas is usually used for processing or other high priority purposes for which other fuels are unsuitable or not as satisfactory.



For the reasons herein submitted, the sale of firm industrial gas to industry is of benefit to the producer, the pipeline company, the distributor and the consumer and makes possible the utilization of a natural resource in industrial development. It would therefore appear that the sale of natural gas to industry on a firm basis is in the national interest.

The sale of interruptible gas to industry need have no adverse effect on the load factor of the distributor. Actually the sale of such gas by the distributor may greatly improve its load factor and also result in improved load factor for the pipeline company and a more constant flow from the wells of the producer.

As the term implies, "interruptible gas" represents sales of gas to certain customers deliveries of which may be interrupted from time to time in accordance with the terms of the contract covering such sales. It is quite obvious that gas sold on this basis displaces other fuels which may be utilized for the same purpose. The use of gas for such interruptible purposes is therefore usually motivated by convenience of operation and/or the possibility of some reduction in overall costs as compared with the utilization of other available fuels, even for limited periods of time.

Interruptible gas is sold during periods



when the demand for firm gas is less than the capacity of the facilities through which the gas is handled. If additional volumes of gas can be delivered through the facilities at such times the incremental cost of handling the added volumes is relatively small as the fixed costs on the system are approximately constant regardless of the volume of gas handled.

Thus the sale of interruptible gas:-

(a) Enables the distributor to derive additional revenues in off-peak periods through the utilization of otherwise idle capacity, provided that such gas can be sold at a reasonable margin over the commodity cost of such gas to the distributor. It is pre-supposed, of course, that the annual volumes of gas available to the distributor enables it to make such sales and at the same time meet its entire annual demand.

The additional revenue derived by the distributor from such sales comprises a portion of its utility revenue and tends to enable it to more closely earn its allowable rate of return and/or provide service to all classes of customers at lower rates.

(b) Enables the transmission company to derive additional revenues in off-peak periods through utilization of otherwise idle capacity. These additional revenues will enable the transmission



company to more closely earn a reasonable return on its investment, and/or maintain a selling price to the distributor which will assist the distributor in competing with other fuels, and/or pay a price for gas to the producer commensurate with the risks involved in discovering and producing natural gas and providing the necessary incentive to continue exploration work.

(c) Enables the producer to sell larger volumes of gas, thus generating needed capital to continue the exploration for additional sources of supply to build up gas reserves required to maintain an assured supply to meet future firm demands.

It is submitted, however, that there must be some relationship between the available proven reserves, the demand for gas to meet firm requirements and the demand for gas for sale on an interruptible basis. As already mentioned, gas is usually sold on an interruptible basis for low-priority or less essential purposes. If the volume of such sales was so great as to jeopardize firm supplies for residential, commercial and industrial purposes, including gas required as feed stock in industrial plants, so that sufficient reserves were not available to meet the firm demand over a long term period, say 25 or 30 years, and the sale of such interruptible gas was not essential to enabling the sale of gas on a firm basis at competitive rates,



then large volume sales of interruptible natural gas could be not in the public interest.

To the extent that interruptible gas sales displace other fuels produced in Canada and for which no other markets are available, especially if such interruptible sales are not essential to maintaining an overall competitive rate for firm sales or maintaining adequate long-term proven reserves, then large volume sales of interruptible natural gas could be not in the public interest.

Reference was made earlier in this submission to the effect of the utilization of underground gas storage. The extent to which such storage is available and gas can be delivered therefrom, and the conditions and terms under which the operators of such storage may be able to purchase gas in off-peak periods from the transmission company for injection into storage, must not be overlooked in determining the wisdom of the universal sale of large volumes of interruptible gas. The injection of such gas into underground storage which otherwise would be sold on an interruptible basis, does not affect in any way the operations or economics of the producer or transmission company, but has the advantage of conserving such gas near the ultimate market for firm sale purposes at times when, because of peak conditions on the transmission line, the gas would



not otherwise be available.

Given adequate proven reserves of natural gas and proper conservation of such reserves to assure a long-term supply being available to meet all firm demands, then, for the reasons herein submitted, the sale of natural gas to industry on an interruptible basis is in the national interest.

2. The policies which will best serve the national interest in relation to the export of energy and sources of energy from Canada: The remarks on this topic are confined to the export of natural gas.

It is submitted that, except on a reciprocal basis, no export from Canada should be permitted of natural gas required to meet the demand in Canada over an extended period of time. While it is difficult to determine the period over which the demands of the Canadian market should be protected, it is our opinion that 30 years should be an absolute minimum as it requires at least 20 years' supply to finance the systems required to market gas and the demands will be growing during that period. Thus, it is reasonable to consider that ample gas should always be maintained to meet the Canadian demand for a minimum period of 30 years before export to other countries is permitted.

The export of gas, while obviously depleting the available supply of this commodity, would have the following effect on various segments of the industry:



(a) Increase the revenues of the producer, thus affording him needed additional capital to continue exploration for and development of additional reserves to meet future demands of the Canadian market. This additional revenue would also tend to enable the producer, through the sale of larger volumes, to operate satisfactorily and earn a reasonable return on his investment at a lesser charge per M.C.F. of gas sold to the pipeline company for use in Canada than would be the case if no revenue were obtained from the export market.

(b) Increase the volumes of gas handled by the pipeline companies, thus increasing their revenues, although not necessarily their load factors, and enabling them to earn revenues more in line with a reasonable return on their investment and/or;

(c) Give more assurance that the Canadian distributor customers of the pipeline would be able to purchase their gas requirements at a more reasonable rate, thus making possible lower rates to the consuming public.

Thus, while there are valid reasons supporting both the export and the prohibition of export of gas, it appears that, on balance, some export of natural gas could be considered as being in the national interest, if adequate reserves to meet the Canadian demand are always assured for a period of at least 30 years. In order to provide such assurance



it would be necessary to consider each application for authority to export gas or to increase the volume being exported in relation to the remaining Canadian reserves and the potential remaining Canadian demand at that time, unless the proposed export is predicated on a reciprocal import basis.

3. Problems involved in, and the policies which ought to be applied to, the regulation of the transmission of gas between provinces or from Canada to another country, with particular reference to the regulation of prices or rates to be charged or paid and the financial structure and control of pipeline corporations in relation to the setting of proper prices or charges.

Generally speaking, all natural gas distribution organizations in Canada are regulated as regards rates of charges for service rendered, and other matters, by Provincial or local regulatory boards or Commissions acting in the interests of the consuming public, as well as in the interests of the gas distributing organization.

Two of the greatest problems always under consideration by the gas distributors are the adequacy of available gas supplies over a long-term period and the cost per M.C.F. of such gas. The consuming public are also vitally concerned with each of these problems, as both have a bearing on their comfort and on living costs.

Probably the greatest single annual cost item that any gas distributor has is the cost of gas



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purchased for re-sale. This cost of gas therefore has a great bearing on whether or not the distributor can sell its product in competition with other fuels and continue to carry on a public service.



As provincial or local regulatory boards or commissions have not power to regulate operations of interprovincial pipelines, it would appear then that some national board or commission should be charged with the responsibility of seeing that a prime fuel, such as natural gas, being transmitted interprovincially for sale throughout most provinces of the country is, if at all possible, made available to as many residents and business establishments of the country as possible, at a reasonable price. In considering the reasonableness of such price, weight would be given to the fact that the transmission company must be able to earn an appropriate rate of return on its investment after paying the producer for gas to be transmitted through the line a price commensurate with the risks taken by producers in exploring for and developing gas reserves.

Such a board or commission should also have jurisdiction over the rates charged for natural gas being exported from the country in order to assure that consumers of gas in Canada will not be discriminated against through the export of gas at an unnecessarily low price.

In this manner the provincial or local rate fixing authorities could carry out their functions of determining that to the extent possible adequate supplies of gas would be made available to



the distributors in the areas under their jurisdiction at prices which were under the scrutiny of a national body. Such a policy, affecting only pipeline companies involved in interprovincial or international operations, would in no way be in conflict with the jurisdiction of provincial or local boards.

A national body such as that contemplated herein might also be given some authority over the proposed financial structures, and changes therein, of pipeline companies operating on an interprovincial or international basis. This jurisdiction, however, might be confined to such matters as the adequacy of financing to enable the completion and proper operation on a sound basis of proposed pipeline projects. In the final analysis the institutional and other lenders and investors, who usually critically scrutinize such projects before investing in any of the securities to be issued therefor, will not risk their funds in a project unless they are convinced that it is a sound investment.

Some uninformed investors might consider the issue of securities bearing the approval of a national commission or board as being in the nature of a governmental guarantee. Further, most if not all of the provinces already have securities commissions to screen and set minimum disclosure regulations governing the sale of securities within their respective provinces.



It would appear that so far as the maner in which pipeline or utility projects are financed is concerned, the interests of the public are protected if the allowable earnings of the company operating the facilities are restricted to a reasonable rate of return, established after consideration of the risks involved in the venture and the returns available from investing in other projects of comparable risk, on the fair value of all plant plus working capital, etc., actually dedicated to the operations being carried on.

All of which is respectfully submitted by:
Union Gas Company of Canada, Limited and its Subsidiaries.

The balance of the submission, sir, is the schedules at the end of the submission.

THE CHAIRMAN: Thank you very much, Mr. Palin.

If counsel would agree, unless they suggest some other course, and unless it is going to prove very inconvenient to you gentlemen, we might adjourn now and reassemble in this Council Chamber tomorrow morning at nine-thirty.

MR. PALIN: Yes, sir.

MR. PATTILLO: Perfectly satisfactory, Mr. Chairman.

THE CHAIRMAN: Gentlemen, we will adjourn now and re ssemble in this Council Chamber at nine-thirty tomorrow morning.

---Whereupon these proceedings adjourned at 5 p.m., to resume at 9.30 a.m.. Tuesday, July 22, 1958.

ROYAL COMMISSION

ON

ENERGY

HEARINGS

HELD AT

MONTREAL

P. Q.

VOLUME No.:

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ROYAL COMMISSION

on

ENERGY

Proceedings of hearings
held at Montreal, P. Q.,
commencing Monday, July 14,
1958

PRESENT:

MR. H. BORDEN, C.M.G., Q.C.	- Chairman
MR. J. L. LEVESQUE	- Member
DR. R. D. HOWLAND	- Member
DR. R. M. HARDY	- Member
MR. L. J. LADNER	- Member
MR. G. E. BRITNELL	- Member

COMMISSION COUNSEL:

Mr. A. S. Pattillo, Q.C.

Mr. M. H. Patterson

Mr. J. F. Parkinson	- Secretary
Major N. L. Lafrance	- Asst. Secretary



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C O R R I G E N D U M

VOLUME NO. 48 - July 4th, 1958

- Pages 6623 - 6624 - Substitute "Mr. Coates"
for "Mr. McNeill"
- Page 6623 - 3rd line from the bottom - Add
the word "value" after the word "fair"
- Page 6636 - 6th line from the bottom - Substitute
the word "gas" for the word "gases"
- Page 6646 - 10th line from the top - Substitute
the word "could" for the word "couldn't"
- Page 6647 - 12th line from the bottom - After the
word "and" add the word "after"
- Page 6651 - 12th line from the top - Delete the
word "but"
- Page 6652 - Last line - Substitute the word -
"would" for the word "always" and
substitute "Mr. Coates" for "Mr. Tippy"
- Page 6653 - 6th line from the top - Substitute the
words - "the privilege" for the word
"experience"

VOLUME NO. 49 - July 5th, 1958

- Page 6766 - 10th line from the top - After the
word "as" add "Trans-"
- Page 6772 - 4th line from the bottom - Substitute
the word "obtain" for the word "avoid"
- Page 6782 - Last line - Substitute the word
"industry" for the word "utilities"
- Page 6783 - 12th line from the bottom - Substitute
the word "fine" for the word "find"
- Page 6810 - 10th line from the top - Substitute the
word "province" for the word "project"



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E X H I B I T S

M-22-1	Interim Submission of the Department of Mines, Province of Nova Scotia	8370
M-22-2	Document entitled "Proposed Sale of Natural Gas at Niagara International Connection to Tennessee Gas Transmission Co.	8402
M-22-3	Submission of Trans-Canada Pipe Lines Limited on gas storage	8417
M-22-4	Document covering Probable Impact of Trans-Canada's Gas Sales on the markets for oil and coal in Ontario and Quebec for the year 1962-1963	8443
M-22-5	Comparison of ERC-SRI Market Estimates	8450
M-22-6	Document re application of suggested method for ascer- taining amount of gas for export	8453
M-22-7	Submission of Mid-Continent Pipelines Limited	8457
M-22-8	Submission of Western Decalta Petroleum Limited et al	8485
M-22-9	Submission of Quebec Gasoline Retailers and Garage Opera- tors Association Inc.	8523



Montreal, Quebec,
July 22, 1958.

---On resuming at 9.30 a.m.

THE CHAIRMAN: The Commission will now resume its hearings. Mr. Pattillo?

MR. PATTILLO: Thank you, Mr. Chairman.

Mr. Palin, I would like to ask you some questions, if I might, regarding storage and I wonder if you would please turn to your Schedule 12. Now, as I understand from this schedule the Storage Company presently has four pools; is that correct?

MR. PALIN: Yes, sir.

MR. PATTILLO: And there is another pool that Imperial Oil presently owns which in your opinion is going to be suitable for storage; that is the Waubunna pool?

MR. PALIN: The pool is owned jointly at the present time by Imperial and Union.

MR. PATTILLO: And that would be suitable?

MR. PALIN: Yes, sir.

MR. PATTILLO: When do you anticipate that that pool will become available for storage?

MR. PALIN: It is presently a producing gas field and at the present rate of reduction from that pool, Imperial's portion of the gas would



have all been produced on or about the first of December, 1959. That pool will be available not later than that date and there is a possibility, of course, that it could be made available a little before that by arrangement with Imperial on payment for gas before it is actually produced.

MR. PATTILLO: Then, we come to the two pools in the Dawn area that are presently owned by you people, which will become available some time in the future. Can you give us any idea as to when they will become available?

MR. PALIN: On the basis of our present projections it will be some time within three or four years from now. That is a flexible date, depending on requirements. In four years they could be down to cushion pressure but before that time they may be ready.

MR. PATTILLO: Then the last two, Nos. 12 and 13, I notice that you say they are considered to be good potential storage areas. What is the reason for the change in the language regarding those two fields as opposed to the others?

MR. PALIN: Well, from what is known of these two pools at the present time, our geologists feel they are potentially good storage areas. The reason for the hedge on the statement is that there is some oil produced in those pools. They are both owned by Imperial Oil and there is some oil in



them which Imperial want to carry on with and that would have some effect as to when they will be available for storage. The other point is that the fields have not been completely delineated as to how far the storage can extend. However, it is the feeling of our geologists that some day they will be storage areas for somebody.

MR. PATTILLO: But they have not advanced to the stage where you could even give a rough estimate as to when they will be available?

MR. PALIN: No, sir, there has been quite a bit of production at the Kimball-Colinville pool, and as I say they are directly under the control of Imperial and I do not know what their thinking would be. Possibly in the space of the next two or three years Kimball-Colinville could be available for storage if the oil production did not interfere and it was properly delineated.

MR. PATTILLO: Now, apart from these pools that are listed there, are there any other known possible pools in Southern Ontario available for storage?

MR. PALIN: Yes, sir. At the bottom of page 22 of the blue book there is reference made to two pools and possibly I might read that short paragraph:

"In addition to the pools listed on Schedule 12, there are other natural gas



pools or formations in Southwestern Ontario which might also be adapted for storage purposes. The two most prominent of such pools are the Seckerton and Corunna, the gas produced from which is currently being purchased by Union. While the combined capacities of these two pools at original pressure was approximately 17 billion cubic feet, because of the fact that oil is being produced with the gas and the pools have not as yet been definitely delineated, the potential efficiency of their operation as storage areas has not as yet been determined."

MR. PATTILLO: Apart from those two to which you have referred on pages 22 and 23, you know of no others?

MR. PALIN: There are some smaller pools that might be made available in various sections of the area but in the opinion of our geologists they are not what you would call preferred storage areas. They may be marginal. Some of them are relatively small, some of them we do not have enough experience as yet to know just what the potential would be, but there are several in that category.

MR. PATTILLO: What does your company think of the potentialities of the Tilbury pool?

MR. PALIN: Our geologists who have looked into that figure that the storage of gas -- it is impractical to use the Tilbury field for the storage of gas, both from an economic point of view



and from an operating point of view.

MR. PATTILLO: Now, would you please explain to the Commission what are the qualities necessary to make a particular pool a good potential for the storage of gas?

MR. PALIN: There are several of those, and possibly the major one is that you know the outlets of the pool that you are going to store gas in. You have to know if you will have the entire pool under your control. Other points are the permeability of the structure as to the rate at which gas can be injected and withdrawn from the area; the fact as to whether or not the pool was originally a sweet or sour gas pool. Sour gas, hydrogen sulphate content would mean that the gas stored in there would have to be purified when it came out and that would be a cost. That is the trouble with Tilbury, it would all have to be purified on withdrawal. Then, the original volume content of the pool, as to the amount of gas that it would store; the proximity of the pool to a major transmission line that could take the gas to market; a matter of the pressures, the horsepower required to get the gas in and out of storage. Those are the major items to be taken into consideration in determining the value of a potential storage area.

MR. PATTILLO: In Schedule 12 you have



certain headings and would you explain for the record what they mean? For instance, "Total Capacity of Pool". I understand what you mean by that, but what do you mean by "Cushion Pressure"?

MR. PALIN: There is a certain volume in each pool of gas that must be left in there at all times to maintain a pressure base. That is a volume of gas to maintain a pressure base. The gas has to come out under pressure and it is within, you might say, an economic range as to the volume of gas you maintain there at all times to maintain pressure.

Suppose we look at cross-line No. 1, the cushion pressure is 550 pounds. That means we would never pull the pressure of that pool down below 550 pounds, and with 550 pounds there would be still 5,376 billion cubic feet of gas in the pool. In other words, on that basis a portion is not available for sale; it is really part of the plant and we carry that gas on the balance sheet as part of the plant.

MR. PATTILLO: Why is it in the case of that pool you need a cushion pressure of 550 whereas in connection with pool No. 4 you only require a cushion pressure of 200?

MR. PALIN: The Dawn 5985 on line 1 is what you might term our key pool! If I might



jump to columns 7 and 8, you may notice that pool C when it is at maximum pressure -- in other words, the working storage capacity when completely filled up is capable of producing 270 million a day, and down to cushion it will produce 179 million a day, which is the best pool in the group. The intention is to hold that pool so we can always have one pool to pressure up to meet a peak day late in March or if something goes wrong with the compressor station we have a reservoir to produce gas in one day. It is a safety and operating factor and under our proposed method of operation that will be kept as close to maximum pressure as possible.

Dawn No. 1, on line 4, I might say that is a relatively small pool but the theory is the same. That pool will be filled up in the storage system in the summer season and it will be pulled down as gas is required in the winter, down to cushion pressure. Some of these will be pulled down at the beginning of the season and others will be pulled down at equal rates, so they are not looked on as key pools. You might say they are being maintained to meet emergencies of a very late season peak day.

MR. PATTILLO: Now, what are the costs that enter into the problem of storage of gas?

MR. PALIN: The major costs may be termed



as a group as fixed costs; that is the cost of discovery of the pool area and what is more important, buying a pool. You have to buy a pool with the base pressure gas that is in there, and it could be quite expensive to buy it. There is the matter of the storage lines in the field as compared with the actual transmission line to carry gas across the country. There is the compressor station requirements from the fixed capital point of view.



There are large amounts of working capital that will have to be maintained in a storage company to finance their input of gas that is being maintained from day-to-day sales. It needs a lot of capital to pay for the gas you put in in the summer to carry it during the winter. There are the compressor operating costs, the payments to the land owners from whom the actual storage area is leased, and there is the cost of drilling and deepening wells in a storage area. The original wells may not be satisfactory for storage purposes. You may want to change them in some way. All those costs enter into the capital costs of storage. On top of that there are the usual labour costs, municipal taxes, income taxes, interest on investment and depreciation.

MR. PATTILLO: Am I correct in thinking that the operating costs of a pool are in the industry broken down, as are the operating costs of a transmission gas company, between demand and commodity?

MR. PALIN: Yes, they can be broken down on that basis. In our estimates we break them down in that way.

MR. PATTILLO: Would you just illustrate what you put in the category of demand?

MR. PALIN: As a broad statement, most of the items go into demand. Take an item of municipal taxes on the pipelines and on the wells. They



are the same whether the wells and pipelines are actually operating at all or at capacity. They are fixed. Practically all the labour is a fixed cost because the staff have to be there whether the line is in operation or not. They have to be available to put it into operation. The main commodity items are the items of compressor fuel, which is a fairly expensive cost when you are storing gas against pressure, and compressor maintenance. We usually break that down to 50 per cent to demand and 50 per cent to commodity. If the line is operating the maintenance costs are greater, but even if it is not operating you have maintenance costs. Lubricating oil is in the same class and goes into the commodity because you do not use it while it is actually operating. Then there are a very few of the other expenses -- I cannot think of the major ones at the moment -- that are broken down between commodity and demand on a sort of arbitrary basis, a more or less judgment basis.

MR. PATTILLO: In determining whether or not a field that is suitable for storage should be utilized as such, does the location of the field to the potential market for the gas enter into the consideration?

MR. PALIN: Yes, it does.

MR. PATTILLO: Would you explain why?

MR. PALIN: Well, if the field is close to a major market, your transmission costs are a lot



less. The costs of getting the gas to and from the storage area are a great deal less than they would be if the field were several hundred miles away from the major market.

MR. PATTILLO: Are the transmission costs to and from a storage field relatively high as opposed to the transmission costs of a pipeline system?

MR. PALIN: Well, the same factors enter into the transmission of gas in either case. I would say there is not a great deal of difference in the straight costs.

MR. PATTILLO: What I was thinking of was the load factor. Could you explain that at all to us?

MR. PALIN: It all depends on the load factor in both cases -- the load factor on cross-country transmission and transmission storage. They are both affected by load factor. That is common to both. I was just dealing with the differences between the two.

MR. PATTILLO: I know it is common to both, but what is the general experience in transmitting to a storage field as to the load factor?

MR. PALIN: As far as the storage field is concerned, in actual practice, the critical point of the load factor is when you are taking gas out of storage to meet the peak demand in the winter months. It is possible to interject it into the



pool on an even basis and at a lower rate per day throughout the summer to get the gas in the pool, but the load factor of a storage system could be very poor on the withdrawal side because of the fact that you are maintaining that gas there to meet a peak day and you have to have the capacity in that pipeline to meet that peak and you may only use it half a dozen times a year, and yet the capacity is there for the whole year.

MR. PATTILLO: Now, in the operation of a transmission system -- I do not know whether I put this question very well but I hope you get what I am trying to drive at -- would you explain the function of a storage system? When one is setting up a transmission system for gas and bringing it from fields and selling to distributors or when one is in fact a distributor of gas himself, what is the function in his scheme of things of the storage system?

MR. PALIN: Well, using our own companies as an example, storage in our case performs more than one major role. For instance, we have been able to buy gas from the United States in the summertime, bring it in and put it into storage. In one contract we are empowered to import from the United States during the months of April to October inclusive each year 5.5 billion cubic feet of gas. We do not need all of that gas in the summer; with our local contracts and local production actually we need a



relatively small portion of that. So the balance of it, say, as much as 70 to 75 per cent, is put into storage. It stays in storage till we require it in the winter, and with the large house heating load that we have in our territory that gas is available to meet that house heating demand. If it was not for the storage in that case we would not be able to buy that particular gas, because we can only get it in the summer, and there is no market for it in the summer. We have been able to hold that gas for firm sales to house heating loads over the winter months. The storage enables us to get the gas in the first place and to hold it to meet the peaks.

MR. PATTILLO: Would storage gas ever be used for interruptible sales, for example?

MR. PALIN: There, again, speaking for our own companies, we do not have any interruptible sales at the present time except interruption only to the extent required by the Ontario Fuel Board Act in case of emergency. So we do not have any interruptible sales as such. I do not think we could afford to store gas and then use it for interruptible purposes. You only put the gas into storage to meet peaks, and if you drew that out and sold it for interruptible purposes, you would be sold out in the peak periods, and I do not think we could afford to do that.

MR. PATTILLO: Again using your company



as an illustration, if you did not have storage facilities, in order to have flexibility in your system would you be forced to be selling interruptible gas?

MR. PALIN: That is a rather difficult one to explain. Our present contracts we entered into knowing that we had storage. If we did not have storage we could not have entered into that type of contract. If we just bought the gas on the basis that we would have needed it without storage, we would have paid more for our gas and we could not have handled the proportion of the house heating load we now have. In other words, we could not have met our peaks. The cost would be so high that we could not get that out of the market.

MR. PATTILLO: That is what I am trying to get at. Because of the load factor that you would normally have in your system, if you are going to try to improve the load factor, if you have no storage facilities, don't you have to sell interruptible gas?

MR. PALIN: Yes, we would be interested in interruptible gas on that basis. That is correct.

MR. PATTILLO: Now, in determining whether a company is going to sell interruptible gas or is going to take advantage of storage facilities, what would be the factors that they would take into consideration?



MR. PALIN: I suppose they would take into consideration the effect on their load factor of buying the gas. If they bought it during the summer and put it into storage rather than buying it in the summer and selling it for interruptible purposes, that should have no effect on the load factor. Generally speaking, it would be the same in either case. So it would get down to the point of view, then, as to what firm load they could make available in the periods in which this otherwise interruptible gas was not available, what they could sell that gas for and what it would cost them to store that gas themselves or have somebody store it for them. All those things would have to be taken into consideration. Before it would be advantageous to store gas and sell it as firm gas rather than interruptible, it gets down to the economics and the availability of a market, of course, for the firm gas.

MR. PATTILLO: What is the most expensive item in the storage of gas -- transmission or the actual storage in the field?

MR. PALIN: In our case, the case of the Union Company's storage, one of the big items, of course, is the cost of the gas we buy ourselves and put into storage. Then the so-called fixed costs are by far the biggest item of storage costs.

MR. PATTILLO: Perhaps I can illustrate this way. When Consumers' Gas were before us, Mr.



Jones told us that they were storing gas under contract with your company and that they had a fixed cost for that gas. Now, what would be the biggest item that would go into that cost to him, the transmission of it from the lines to storage and out of storage?

MR. PALIN: In that particular case -- each one of these has to be looked at on its own merits; you never get two cases exactly the same. Incidentally, I was not present when Mr. Jones gave his evidence and I am not too familiar with what he did say, but in the case of that particular contract with Consumers' the transmission costs, as apart from the storage costs, make up about 50 per cent of the total costs. In other words, if his line happened to be right close to our storage or, conversely, if our storage had been close to his line, then the total cost to him, as far as what he is paying to Ontario Natural Gas for storage is concerned, would be 50 per cent of what it is now. If he has a long return haul to get back to his market he has a cost as far as hauling the gas is concerned, if his market is 300 miles from storage.



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MR. PATTILLO: When you are using that figure of 300 miles, you are aggregating the mileage in and out?

MR. PALIN: That is a round trip, yes sir. If the storage were right at market, it would be no miles. If it is 150 miles away, you have to haul that gas both ways. It is a 300 mile haul for the gas.

MR. PATTILLO: These present fields that your company is operating, and the ones that you consider good potential, are any of those sour gas fields?

MR. PALIN: No sir.

MR. PATTILLO: None of them are?

MR. PALIN: No. I might say that none of the fields on schedule 12 are sour gas fields.

MR. PATTILLO: So that are you in a position to give us any help as to what it cost to make sour gas fields potential storage fields?

MR. PALIN: The additional cost using sour gas would be the purification of the gas.

MR. PATTILLO: So that you would have a purification as if you were originally drawing from a sour gas field?

MR. PALIN: Yes sir, that is right. You would have to purify all the gas after it came out.

MR. PATTILLO: Thank you.



THE CHAIRMAN: Mr. Frawley?

MR. FRAWLEY: Thank you Mr. Chairman.

Mr. Chairman I should like to make a short statement at this time concerning our position. I do not propose to take the time of the Commission in asking a series of questions relating to the employment of Ontario Natural Gas reserves and storage facilities to help meet the requirements of the Eastern consumer. I suggest, with respect, that the Commission itself is in a position to get all of the information of that character ~~that~~ it deems necessary.

The Premier of Alberta already has said to the Commission that the gas requirements of Canada are and will receive preference in so far as Alberta is concerned. The Province is making a study, and will make periodic studies to determine how established reserves, future reserves and storage reservoir in Alberta can best be utilized to meet the Canadian requirements. We believe that similar studies should also be made by the other gas producing provinces, including the Province of Ontario. This is particularly important from the point of view of the Eastern consumer.

With respect to interruptible gas, we believe that a certain amount of such sales are in the interests of the consumer, and of the producer, but we also believe that indiscriminate use of interruptible sales to build a very high operating



load factor may not be in the interests of either the producer or the consumer.

We have not had experience in Alberta with interruptible sales, but we base our statement on the basis of two natural gas investigation reports made by the Federal Power Commission in 1948. I refer to Federal Power Commission docket number G580, the report being dated April 28, 1948. These reports stress the value of storage projects near high consuming areas in the interests of converting interruptible sales to firm sales. This of course can only be done economically if the in and out cost of storing gas are less than the spread between firm and interruptible sales.

Having made that statement Mr. Chairman, I have no questions for the Union Gas officers.

THE CHAIRMAN: In referring to the F. P. C. docket, is that the Fanning statement?

MR. FRAWLEY: Those are the reports - it is really one report sir, it came out in two volumes; one being a report of Commissioner Smith and Commissioner Wimberly, which is commonly referred to as the Smith-Wimberly report; and the other which came out at the same time is the report of Commissioner Olds and Commissioner Draper. I put that into the record because I am quite sure that those reports are available. It may be that the Commission staff already have them.



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THE CHAIRMAN: Thank you very much.

MR. COMMISSIONER HARDY: Mr. Chairman, the information we had from Consumer's was that their storage contract with Union was costing them about 31 cents Mcf, and they also gave us a figure, their lowest rate for industrial interruptible was 40 cents, and their lowest figure for firm industrial was 70 cents, so that you could see by a little simple arithmetic that the economics of their operation - you add 40 and 31 and get 71, so that you can see the economics of their proposition is that they can afford to spend on storage per 1,000 Mcf what would convert gas that could normally be sold - otherwise sold as industrial interruptible could then be sold as firm industrial, and I am wondering what is the governing figure in your case where you are not selling any interruptible industrial?

In other words, for every 1,000 Mcf of storage that you get what is the value of that, or you increase your market, you can increase your market but is that to the domestic consumer or to the industrial consumer?

MR. PALIN: We can increase our market to both. We put gas in storage, if I get your question right sir, we can put gas in storage in the summer-time that would otherwise not be available to us. We can withdraw that in the winter-time to meet the demand of all our firm customers. We only



have firm sales. We have not interruptible sales.

MR. COMMISSIONER HARDY: Then it might be economical to view the cost of your storage at what you sell to domestic consumers; might be \$1.30, it might be worth \$1.30 to you per Mcf in some cases?

MR. PALIN: If you look at it that way, we could take - say if our domestic rate is \$1.15, we can sell that gas for \$1.15 only from gas we have had in storage. The value of that storage, you might say, is somewhere between the price that you actually pay for the gas and the \$1.15.

MR. COMMISSIONER HARDY: Well that is a lot - definitely would be a lot more than the 31 cents?

MR. PALIN: Oh yes.

MR. COMMISSIONER HARDY: That the consumers are now paying?

MR. PALIN: I was thinking of the value as compared with gas, yes, it would be a lot more.

MR. COMMISSIONER HARDY: Then the value of the gas that is made available to you then by storage could vary tremendously depending on what your own particular market is like, is that a sound conclusion?

MR. PALIN: Yes sir, from a value point of view, yes.

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TO THE DIRECTOR, UNIVERSITY OF CHICAGO

FROM THE DEPARTMENT OF CHEMISTRY

RE: A REPORT ON THE PROGRESS OF THE RESEARCH

CONDUCTED BY THE DEPARTMENT OF CHEMISTRY

IN THE YEAR 1953

AND THE RESULTS OF THE RESEARCH

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MR. COMMISSIONER HARDY: Then it would also follow that if you were considering economics of a certain storage field you might come up with entirely different answers depending on whether you were considering it from the point of view of Union Gas with your present operations as compared to considering it from the point of view of the Alberta producer, Trans-Canada and maybe Union Gas as a distributor? The economics then would be quite different between those two cases?

MR. PALIN: Actually in our corporate set-up, we have a separate company that operates the storage for wholesale. The Union Gas Company buys from that storage company as do other customers. The storage company has several customers including Union. Both from the economics of operating that company, and the storage company are much the same because that company sells gas to the storage company, sells gas to its customers on a demand commodity basis so as far as they are concerned, as far as this storage company is concerned their sales of gas, you might say, that it is none of their concern what they are ultimately used for.

MR. COMMISSIONER HARDY: Each distributing company buys the gas and figures what it is worth to them?

MR. PALIN: That is right.

MR. COMMISSIONER HARDY: It might be



worth a different amount, or have a different value with each company?

MR. PALIN: That is right, yes sir.

As far as the storage company is concerned, they have a uniform rate for the sale of gas to wholesalers for the utilities. It is in the hands of the distributor then knowing what their costs of gas are as to what they do with that gas, what rates they can get for it.

MR. COMMISSIONER HARDY: Surely from the other point of view - I am not suggesting there is anything wrong with what is being done now.

MR. PALIN: I just hope I get your question.

MR. COMMISSIONER HARDY: It surely would vary but if you were analyzing the advantages of storage as a method of controlling load factor, from the point of view of the whole industry starting with the producer in Alberta and coming east to Trans-Canada, through the storage company and through the distributing companies, that you might have a different answer as to its value in dollars and cents than you get under the present circumstances where you are dealing with a distributing company and a storage company.

MR. PALIN: There are a lot of factors to be taken into consideration in such a calculation.

MR. COMMISSIONER HARDY: That is a point,



the factors are not the same under two separate circumstances.

MR. PALIN: You might, for the sake of interests - for the sake of argument have a certain amount of gas available in the summer that could be used for interruptible sales. There may not be that volume of storage available to handle that, so you couldn't compare the two. In other words, maybe there is only storage available for 50 per cent of the volume you are thinking of coming in as interruptible.

MR. COMMISSIONER HARDY: It requires an individual study in other words?

MR. PALIN: Yes sir, that is the difficulty.

MR. COMMISSIONER HARDY: Then it also would be true would it not when your geologists tell you that the Tilbury field is not economical for storage, for your purposes, that might not necessarily be the right answer if you were considering the whole situation in eastern Canada with Trans-Canada and the Alberta situation?

MR. PALIN: As far as the Tilbury field is concerned, our geologists looked at that, let us say, from a national point of view rather than just our own purpose.

MR. COMMISSIONER HARDY: They did?

MR. PALIN: That is right. You see,



some of that coal is on land, some 18 odd thousand acres, I believe, on land. They have no idea how far it goes out on Lake Erie. They have never been able to delineate that. There could be as much as 50,000 acres just as a guess in view of the wells that have been drilled out there. It is sour gas, all the gas taken out would have to be purified. Then there have been so many wells drilled in that area - it is practically one of the earliest discovered pools in Ontario - there have been so many wells drilled and abandoned in that pool that you would very likely have to go back and replug a great many of the wells to make it tight for storage so you wouldn't lose gas.

Further, there is water dried in that pool of which they do not know the characteristics. It may be that the storage of gas would just push the water back and then it may be that it wouldn't.



MR. COMMISSIONER HARDY: On this sour gas business, what would you be taking out -- the sulphur?

MR. PALIN: Yes, sir.

MR. COMMISSIONER HARDY: From the information we had in Alberta, why, sulphur should have quite a value down here.

MR. PALIN: At the rate we are taking it out we do not even maintain it.

MR. COMMISSIONER HARDY: It is too small?

MR. PALIN: Yes.

MR. COMMISSIONER HARDY: If there was a lot more storage it might become self-sustaining?

MR. PALIN: There may be enough to contaminate the gas without recovery. I don't think there is any sulphur recovery in Ontario.

MR. COMMISSIONER HARDY: There is no danger of sulphur competing?

MR. PALIN: No.

MR. COMMISSIONER LEVESQUE: On page 51, the last paragraph, you say:

"A national body such as that contemplated herein might also be given some authority over the proposed financial structures, and changes therein, of pipe line companies operating on an interprovincial or international basis."

On the other page we have:

"Some uninformed investors might consider the issue of securities bearing the



approval of a national commission or board as being in the nature of a government guarantee."

Do these go together? On page 51 you seem to approve it, and on page 52 you seem to be a little against it.

MR. PALIN: I think, sir, what I was trying to get across -- actually this information was in answer to one of the questions that were directed to us by the Commission staff. I think that paragraph on page 51 we have to take down to the next sentence -- "A national body such as that contemplated herein might also be given some authority over the proposed financial structures, and changes therein, of pipe line companies operating on an interprovincial or international basis. This jurisdiction, however, might be confined to such matters as the adequacy of financing to enable the completion and proper operation on a sound basis of proposed pipe line projects."

What I had in mind there -- this board or commission might look at the initial set-up of a company to make sure it was, in their opinion, properly financed so that they could bring their project to completion and into operation. In other words, if there was something like a Certificate of Public Convenience and Necessity going to be issued, before that was done the board or



commission would satisfy itself that the project was properly financed so that it could be brought to completion.

MR. COMMISSIONER LEVESQUE: Would that need authority? It would need to have authority to approve the financial structure.

MR. PALIN: Yes. I assumed that there was some body set up of this nature as far as financing was concerned. We felt, looking at the finances of these various companies, that was not necessary, but if there was going to be a certificate issued to a company to lay out a pipeline, this board would satisfy itself that it was sufficiently financed to get into operation. That is the only interest that they should take in it. In other words, if it was a fly-by-night affair that wasn't going to be financed it could be thrown out on unfinanceability. That is what I had in mind there.

Then, the statement at the top of page 32 was one reason why it occurred to us that may be in the best interests if this commission approved all types of financing for all companies. Some people may feel that this was guaranteed by a government body.

MR. COMMISSIONER HOWLAND: Mr. Palin, you are probably fairly familiar with the situation in the United States as regards storage and



interruptible supplies. Yesterday we were told that Pennsylvania and Ohio did not allow interruptible supplies. What I would like to know is if you have any information as to why, in these states, interruptible gas is not allowed?

MR. PALIN: No, sir. I might say that I learned that myself for the first time yesterday, that interruptible sales were not allowed in those states. I didn't realize that was the situation, although I do know there is extensive storage in that area. Whether that has anything to do with it, I don't know.

MR. COMMISSIONER HOWLAND: Have you any idea of the ratio of storage available to total sales in those states?

MR. PALIN: No. I know there are extensive storage facilities in those areas, that they do operate a number of storage projects, but what it is in relation to their sales, I have no idea. I imagine that information would be available from the Federal Power Commission.

THE CHAIRMAN: Thank you very much, indeed, Mr. Rogers, Mr. Weir and Mr. Palin, for the submission which you have given to the Commission and for the information with which you have supplied us; it is most helpful and valuable to us. We appreciate very much your cooperation. Thank you. Gentlemen, we will have a five-minute break.
---Short recess.



Interim Submission of
THE DEPARTMENT OF MINES
PROVINCE OF NOVA SCOTIA

Appearances:

Honourable Ed Manson	- Minister of Mines
Mr. H. C. M. Gordon	- Vice President and Manager (Coal), Dominion Coal Company
Mr. Charles Appleton	- Dominion Coal Company (Sales)
Mr. Tom McLauchlan	- President, United Mine Workers of America

MR. PATTILLO: Mr. Chairman, we now have the Government of Nova Scotia coming before us to make some representations. They have filed an interim brief, which I propose be marked as M-22-1.

---EXHIBIT NO. M-22-1: Interim Submission of the Department of Mines, Province of Nova Scotia.

MR. PATTILLO: The Minister of Mines Mr. Manson is here with others from the Province. I am going to ask him to introduce the members of his group to the Commission.

THE CHAIRMAN: Mr. Manson, would you introduce your colleagues?

MR. MANSON: Yes. Mr. Chairman, I would like to introduce Mr. H. C. M. Gordon, Vice President



and General Manager of Coal, of the Dominion Coal Company; next to him is Mr. C. W. Appleton, in charge of Sales, Dominion Coal Company; Mr. Tom McLauchlan, President of the United Mine Workers of America.

THE CHAIRMAN: Do you propose to read the brief, Mr. Manson?

MR. MANSON: Mr. Chairman, I propose to read the brief as pertaining to natural gas oil and problems relating to a national energy board at this time, with your permission. In our interim brief, as submitted to you earlier, there were other problems that were dealt with. We at this submission consider that this is more of a, let us say, defensive submission on behalf of the coal industry as it pertains to natural gas, oil, and also on the national energy board, and we look forward to presenting another brief when your Commission visits Nova Scotia, which possibly may be more of a positive nature than this one here.

So, with your permission, Mr. Chairman, I will go ahead and read the submission on natural gas, residual oil and national energy.

---(Brief in full follows).

MR. MANSON: While Canada is fortunate in having within its own boundaries sources of energy, such as coal, oil, natural gas, water and



uranium, the long range conception of national progress definitely requires a vital and progressive coal industry. It is considered opinion of experts in the energy field that the large scale use of coal will be essential for the continued growth and economic development of Canada. This cannot be achieved if the markets for coal continue to decline with resultant closure of mines, loss of facilities, the elimination of skilled technicians and trained miners.

The coal mining industry is presently passing through a most critical period and we wish to impress upon the Government of Canada the present critical condition of the industry and the necessity for all governments concerned to co-operate to the fullest extent possible in assisting the coal industry in the solution of its immediate and long range problems.

This interim brief will be essentially a presentation of facts from which the Commission may draw its own conclusions, because the future economy of Nova Scotia's mining industry will be dependent to a considerable extent upon the future of its coal mining operations, production from which now accounts for 75 per cent of the Province's mineral wealth, which is valued at about \$68 million per annum.

There can no longer be any doubt that



at present the plight of coal mining in Nova Scotia is not an enviable one. Through the dieselization of our major transport systems, the large inroads made by liquid fuel for domestic and industrial heating and the use of residual fuel oil in place of bunker coal for ships, the markets for our coal output have seriously declined in recent years. It has been pointed out that industrial expansion throughout Canada and particularly in Ontario, is proceeding at such a rapid rate, that future energy requirements are outstripping the growth of hydro power development. The production of electrical power by hydro in Ontario will have about reached its limit with the completion of the St. Lawrence project and future energy requirements will have to be met by thermal power. This condition is cited as an opening for possible new markets a few years hence for Nova Scotia coal, provided it can compete with American imported coal. A similar condition exists in our own province with regard to hydro development and thermal power will undoubtedly be the answer to future power demands in the years ahead. Much of the power that will be developed from the St. Lawrence Seaway project will be available to the heavily populated and highly industrialized section of southern Ontario, since the hydro potential of the Province of Quebec is still sufficient for its own needs.



Fuel from the Trans-Canada pipeline must also be taken into account. Such a picture nullifies the possible coal market for thermal power as mentioned previously.

Atomic power must also be considered, although it may not enter into the picture competitively for some years. Some thought must be given, therefore, to its possibilities from a long range viewpoint.

The several years of research carried out at McGill University to determine the possibility of manufacturing a coal fired gas turbine power unit have not yet reached a successful conclusion. Should such a power plant prove feasible in the near future, it would undoubtedly give a tremendous boost to our coal market, but in the meantime, other markets for our coal must be found to maintain our coal operations on a profitable basis.

In the final analysis the choice of power as far as the consumer is concerned is one of cost and dependability. The consumer is unconcerned as to how his power is developed, provided it is low cost. If coal can be produced cheaply enough to supply thermal power on a competitive cost basis with other fuels and hydro, it will develop its own markets. If it cannot be produced cheaply enough, then the future outlook for our coal mines is not very bright.



Vigorous attempts are being made by the coal mine operators through mechanization and other improvements to reduce mining costs and improve the quality of the coal in order to meet the stiff competition.

Continued federal subsidies on coal shipments from the province are essential to keep the industry in a healthy state during its struggle to regain lost markets and reduce its mining costs.

Thermal Power: The demand for electrical energy in Eastern Canada is increasing at unprecedented rates and it appears that in certain areas there is a very definite need for thermal plants to carry base loads.

To speed up our industrial development and to increase the market for Nova Scotia coal, we recommend that encouragement be given to power producing companies and power commissions to use underground mined coal for new steam raising facilities by such inducements as may be found practical, such as accelerated depreciation, remission of taxes or other financial assistance for a limited period, or special subventions on Nova Scotia coal.

Natural Gas In recent years natural gas has become available within the boundaries of Canada. This is to be regarded as being to the advantage of Canada provided that no short term



aspects of its distribution be allowed to interfere with or to impair the reserves of other available sources of energy.

From this viewpoint the coal industry is particularly concerned, for pipe lines are now being laid to supply a great part of Canada with gas and it is believed that these pipe lines will be completed before the markets which can best be serviced by gas have been developed. In such event it is not to be expected that, in an effort to keep these gas lines at capacity transmission, gas producers, gas line operators and gas distributors may for a limited period sell gas, in areas now serviced by Canadian mined coal, at unreasonably low prices. In that case coal mines will be closed.

In Nova Scotia such action has no aspect of being temporary. Here, the coal fields are submarine and once a submarine mine is closed it becomes abandoned forever. In addition to the displacement of skilled and unskilled personnel in the industry, transport and distribution agencies it will result in the loss of natural resources to both the province and the nation as a whole.

The Nova Scotia coal industry believes that it is essential to avoid such loss of natural resources, and we wish to impress upon your Commission



the necessity of some form of assistance to presently operating submarine mines so as to maintain coal in a competitive position with natural gas during the period while the natural gas market is being developed in areas now served by coal mined from such mines.

The St. Lawrence Seaway: The construction of the St. Lawrence Seaway is a major undertaking designed to further the welfare of the nation.

There is, however, the grave probability that, unless proper precautions are taken, the opening up of this great waterway may adversely affect the Nova Scotia coal industry, because the production of coal in Nova Scotia is an essential in provincial economy.

If that probability is allowed to materialize it would seem most unfair for the coal-producing companies, and Nova Scotia in bearing their just share of the tremendous cost of the seaway in common with the other provinces, to have contributed to their own detriment. That Nova Scotia being one of the provinces contributing to the good of the whole should suffer thereby is a most illogical proposition.

We therefore seek the immediate collaboration of your Commission in assessing the effect which the St. Lawrence Seaway will have on the Nova Scotia coal industry and urge that you



take the necessary appropriate action to safeguard the coal mining industry and to ensure that Nova Scotia in which coal production is an essential to provincial economy be not adversely affected by the opening up of the St. Lawrence Seaway.

Residual Oils: From the long term point of view the production and use of Nova Scotia mined coal is of utmost importance to the nation. In the recent past the health of the coal industry was impaired by imports of foreign coals, but this has been minimized through assistance provided by the Federal Government by way of freight subvention.

Further and in spite of everything the coal industry has been doing and is able to do, large markets have been lost to that industry because of the increasing use of imported residual oils and residual oils made from imported crudes.

The Nova Scotia coal industry believes that at this time similar assistance through freight subvention should be afforded to the industry to permit it to compete with such imported oils at least in markets over which public bodies have some control.

We, therefore, wish to impress upon your Commission the necessity of authorizing payments of freight subvention on Nova Scotia mined coal,



where practical, so as to make that coal competitive with imported crudes, where such oils could be used to displace coal for the production of energy by public utility plants.

Conversions to Competing Fuels: On March 18th, 1955, the Government of Canada directed:

- (1) that, before the fuel burning equipment in any government building or building under government control which consumed 500 tons of coal per annum or more was changed from coal to other fuel, the Department concerned would consult with the Dominion Coal Board or the Interdepartmental Fuel Committee about economies expected and other relevant factors, and,
- (2) that, before any decision was made with regard to the type of fuel to be used in any government building or building under government control of a size which would require 50 tons of coal or more per annum, the Department concerned would consult with the Dominion Coal Board or the Interdepartmental Fuel Committee on the costs of various fuels and other relevant factors.

Despite the above enumerated policies, conversions to competing fuels continue at an



accelerating rate and it is respectfully suggested that such conversions are being made without due regard to future considerations of price and supply and to the disastrous repercussions on the coal industry and on the Canadian economy as a whole.

We, therefore, recommend that the directive above quoted be revised and strengthened by the Government of Canada to the end that the continued use of coal be encouraged by the proper consideration of the aforementioned factors and that all conversions now pending be re-examined in the light of this recommended revision of policy.

National Energy Board: Reference to the authority that might be conferred on a national energy board. It is our view that absorption of the functions of the Dominion Coal Board into a larger organization with responsibilities in the whole energy field would lessen the effectiveness of its work on coal as this industry has problems peculiar to itself. It is our firm conviction that the Dominion Coal Board should be continued as a separate entity charged with its present particular responsibilities with respect to the coal industry.

In summarizing it may be said that the coal mining industry is waging a strong battle



for survival in a stiffly competitive fuel market and that the success of its efforts will depend upon its ability to hold its local and Quebec markets and to obtain new markets to maintain the minimum annual production which is necessary for a profitable operation.

The Province of Nova Scotia possesses large coal resources which are presently undeveloped, most of which must be won from submarine areas and which form a potential for future mining operations.

The foregoing is presented to the Royal Commission on Energy as an Interim Brief on behalf of the Province of Nova Scotia.



Gentlemen, these are the matters that we are submitting regarding the case in point of the present sittings, that is on natural gas, oils and the National Energy Board. If I may be permitted for a few minutes to possibly carry on to try to illustrate some of our arguments in a general way after which time I will then ask your indulgence and hear my colleagues on their specific specialties. Regarding energy problems in Canada generally, we in Nova Scotia have not been able, up to this time, to actually forecast the future, that is the long-range future up to, say, the 1980's. We hope to have a further submission in that regard possibly in the fall when the Commission is in Nova Scotia. I would like to quote a few figures from the National Planning Commission on the production of nuclear energy in the United States. According to these figures, in 1955 447 million tons of coal or 29 per cent of the total energy for that nation came from coal. Now, they project these National Planning Commission figures on productive uses of nuclear energy, they project that in 1980 that without atomic energy that 851 tons or 27.8 per cent of energy requirements will come from coal in that nation. Even if atomic power comes into the picture, and I am now quoting from a Commission that investigated atomic power, even if it does come into the picture they claim that 735 million tons of coal will be used to produce 27.3 per cent of the energy



requirements of that nation. These figures are given to illustrate the point that according to them there will be more coal required for energy purposes in the United States of America in 1980 than was ever mined in its history, even in the Second World War in its highest years of production. I might state that in the United States in 1944 they produced 683,277,000 tons of coal, yet it is estimated that in 1980 they will produce 735 million tons, that is in excess of their peak years.

Now, I would like to quote the preamble from the Order-In-Council establishing this Commission:

"That, inasmuch as Canada has within its boundaries large sources of energy in the form of gas, oil, coal, water and uranium, the increasing need of energy for the growing industrial requirements of Canada renders it of the greatest importance to assure the most effective use of those resources in the public interest".

Now, I have not before me nor can I on short notice give you the figures on Canada's coal requirements but I do not think it unreasonable to assume that Canada, in 1980, like the United States, will have to produce twice as much coal as at the present time. Another question this Commission should consider in the light of the large tonnage of coal which the United States will require in 1980, considering the manpower aspect of it, will they be



in a position to supply Canada with the large amounts that we will require. That is a question I ask, I have not the answer but I ask the question.

That brings me to the second item of your terms of reference:

"The problems involved in, and the policies which ought to be applied to, the regulation of the transmission of oil and natural gas between provinces or from Canada to another country, including, but without limiting the generality of the foregoing, the regulation of prices of rates to be charged or paid, the financial structure and control of pipeline corporations in relation to the setting of proper prices or charges, and all such other matters as it is necessary to inquire into and report upon, in order to ensure the efficient and economical operation of pipelines in the national interest".

Now, at this time I would like to draw your attention to the fact that our submission as read earlier on the natural gas aspect of it, our arguments are largely contained therein and also in the supplementary brief there are some further arguments to it and I will not take up your time with that. Now, regarding paragraph (c) of your terms of reference:

"The extent of authority that might best be conferred on a National Energy Board to administer, subject to the control and authority of Parliament,



such aspects of energy policy coming with the jurisdiction of Parliament as it may be desirable to entrust to such a Board, together with the character of administration and procedure that might best be established for such a Board".

I would again just like to refer to our written brief on this problem. I have been given to understand that other interests appearing before you have varied views of this but I would conclude my remarks by saying that you gentlemen are better able to judge that because you will be informed of all ramifications of the problem. I do again express the hope that the coal board will be a separate and distinct body and will be allowed to carry on even if in your wisdom you recommend a National Energy Board.

Up to now I have been sticking to the general subject and tried to stay within the sphere of the hearings as **they** are constituted, that is, on natural gas, oil and the energy board. I would try to point out to the best of my information the part coal will play in the future but unless the coal industry can be kept up and assisted by governments or other such agencies the coal industry in Nova Scotia cannot and will not be able to take its place in Canada's national picture in regard to the supply in 1980. The crux of the situation and the whole problem lies in the immediate future. We,



in Canada, feel our industries, including coal mining should be private enterprise but we cannot expect to wait for the time when assistance will be available to supply the output of our mines because the cost is too great. For instance, one small mine, No. 6 colliery in Cape Breton over six years cost approximately \$1 million and that is a very small mine. We cannot look to private enterprise to have losses, we cannot expect the people of the Province of Nova Scotia to maintain the manpower necessary for the industry unless we can look forward with confidence to that period in the long-range view. It is a big problem and one that cannot be put off too long and it is a problem which **is** upon us at the present day. I know I am correct in saying that the views expressed by me today receive the full-hearted support of the Government of Nova Scotia and the people in labour and management who have accompanied me to this meeting.

If the Commission is desirous of asking any questions of any of my group we will be only too glad to answer them. In closing I would like to reiterate that if the coal industry is to survive consideration must be given to the industry which is of vital importance not only to Nova Scotia but to all the Atlantic provinces as a whole. This industry is vitally important to 120,000 people in that area and is the backbone of the economy of the Province of



Nova Scotia. Thank you very much for your kind consideration and I will now ask my colleagues to carry on with various aspects in which they are specialists.

THE CHAIRMAN: Thank you, Mr. Manson.

MR. GORDON: Mr. Chairman, Mr. Manson has asked me to tell you something about the actual mining of the coal. I should first of all say that the corporation will place before the Commission a formal brief at its hearings in Nova Scotia. There are a number of coal fields in the Province of Nova Scotia and the Dominion Steel and Coal Corporation operates in the three most important of them. The recoverable reserves of coal held under lease by the Corporation are estimated to be around, in round numbers, one million tons. The most important field is the Sydney coal field and unfortunately almost the total reserves of coal in that field are submarine. The field is worked on a wide frontage and is worked very intensively. Altogether the Corporation employs 10,500 men in its coal operations and there is a large number of towns and villages depending entirely on the coal operations. At the present time the capacity of the Corporation's pits is six million tons a year and to give the best possible operation economically that capacity should be increased to about 7 1/2 million. During the last number of years since 1951 the Corporation, particularly in



the Sydney field, has gone into an intensive mechanization program. That program, as far as the mining end of it is concerned, is pretty well completed in most of its aspects. I might say that the program has been quite successful and the productivity of the industry has increased quite substantially during the mechanization years. There are some phases which we are now just starting and when they are completed we expect a very considerable increase in the productivity of those pits.



Unfortunately, as I have said, the great part of the coal reserve is a submarine reserve. If there is any interruption of any considerable length in the operation of those pits, then it will be almost impossible to recover any mine that is closed. It is essential, therefore, from the point of view of the coal industry of the province that there should be no interruption in operation. There is apparently going to be a market for very substantial tonnages of coal in the not-too-distant future, but there is a period of three, four or five years lying immediately ahead when it might be very difficult to dispose of the capacity production of the pits. If pits have to be closed because of the lack of markets, then it is going to be extremely difficult. At the present time our coal is disposed of very largely in the Maritime Provinces and in the Province of Quebec. Apparently further markets are needed, and the markets which are available in Ontario are presently being explored. We look forward to a very substantial increase in tonnage sales in the Province in Ontario in the not-too-distant future.

THE CHAIRMAN: Thank you very much, Mr. Gordon.

MR. APPLETON: Mr. Gordon has touched on the sales somewhat. Our great fear of gas coming into this market is that when gas comes into the Province of Quebec it will further disrupt



our sale of coal here. We have a sale here now and in eastern Ontario of about 2 1/2 million tons and we have a need for a market of something like 1 1/4 million tons more, which is not in sight this year.

Mr. Gordon mentioned that we are looking for a further market in Ontario, but at the present time that is not in sight. I do not know that I can say a great deal more than has been said concerning the sales other than to repeat that we could lose upward of one million tons very quickly if the same pattern is carried out in this part of the market where our coal is sold, as has happened in the United States and western Canada, and particularly coming east into Ontario at the head of the lakes and on Lake Superior, where gas is disrupting the coal industry. That is what we are very much afraid of, that we would be exposed to that competition from gas when it comes on the market. I do not know that I have very much more to say. It has been pretty well covered by Mr. Gordon.

THE CHAIRMAN: Thank you very much, Mr. Appleton. Mr. McLauchlan.

MR. McLAUCHLAN: Mr. Chairman and gentlemen, I want to say first of all that we are pleased to be here, we are pleased to join with our Government in making representations before this Commission. I think the primary reason for our appearing here today



is because of the fears held by the company, the government and the union as to the effect that any further encroachment on the coal mines will have on the Maritime Provinces. It has been stated by our Minister that 120,000 people are directly dependent on coal in Nova Scotia. It is estimated by our union that 150,000 people in the Maritime Provinces are directly dependent on the coal mining industry, and, because of the close relationship with other industries, that extends far beyond that in the effect on the economy of these provinces. I think the reason we are here today is that our industry over a great number of years has been faced with a declining market because of competing fuel, and I think that the Canadian people are prone to accept the coal mining industry of Canada as something that is not as big as it really is in the picture of the Canadian economy. I think they are prone to look upon our coal mines as something like a hole in the ground that you can get coal out of today, close down and open in ten or fifteen years' time. I think they are prone to accept that a coal miner is a man that can be picked up off the street and placed in a coal mine and do a good job overnight. Those things are not true. They are not true, because a coal mine in Nova Scotia that is closed today is closed for all time. I am speaking of our submarine mines.



It would be folly on the part of this country to exploit one resource in one end of the country at the expense of the closure of another resource at the other end of the country. We have been striving, as a union, as a government and as an operation, over a considerable period of time to improve production in our coal mines. I would like you gentlemen to go down and see what there is Nova Scotia. We have mechanized equipment in our mines that would make some of your factories and assembly lines look antiquated, and we have men in our coal mines that are possibly the most highly skilled workers that you have in the Dominion of Canada. And we should not forget the effect of the short range program in Britain on the coal mining industry and the trouble they got into when they could least afford to get into trouble. Nor should we forget that you cannot replace a coal miner overnight. A coal miner is a man that is possibly born with coal dust in his veins, and that was proven in the last War when the Government of Canada had to see fit to freeze the coal miner to his job and, in fact, to go overseas and bring some coal miners back to dig coal.

We are simply saying this: that we cannot deal with one source of energy in Canada separately and apart from its effect on the others, and we are saying that in dealing with the sources of energy



today we have to be very careful that we are not going to close out a source of energy that has been the backbone of the economy of this country and has been the one industry that the progress of this country has been based on.

We have made representations as a union as far back as three or four years ago pointing out the dangers of the St. Lawrence Seaway, of importation of oils and of natural gas, and we see those dangers more acute today than we did possibly four, five or six years ago. So what we are saying to you gentlemen, as a union, is that we certainly endorse the action of our government, the action of the operators and their remarks here today and we certainly say that the problem of coal is an immediate one, and any further losses of markets can only have one end result, and that is a shrinking of the coal mining industry to the detriment of Nova Scotia, the Maritime Provinces and the Dominion of Canada. Thank you, Mr. Chairman.

THE CHAIRMAN: Thank you, Mr. McLauchlan. I would like to have you on my side as an advocate.

Mr. Manson, it has not been our habit or custom to question a Minister of the Crown of a province with respect to this, and counsel does not do so, and we do not propose to do so today. We are very grateful to you for co-operating with us as a Commission and coming to Montreal at considerable



inconvenience to all four of you and appearing before us today. I think I can say on behalf of the Commission that we are very conscious of the problem of the coal industry in Nova Scotia and we also are well aware of the great improvements and the mechanization that have taken place during the last several years in Nova Scotia in coal mining. We do intend, as you well know, that we shall have a public hearing in Nova Scotia either later in the year or very early in the new year, and at that time we look forward to seeing you again and receiving a more extended submission with respect to all aspects of the coal mining industry. In the meantime, sir, we are very grateful to you for the expression of the views of the government with regard to the matters which you have dealt with specifically in your submission, and again I want to thank you all for coming here.

MR. MANSON: Thank you very much, sir. I can assure you that if there are any questions we will, let us say, forego our privilege. We are only too prepared to answer them if we can, anytime. We look forward to your visit to Nova Scotia, when we hope to be able to present more positive arguments for the coal industry in that province.

THE CHAIRMAN: Just before you go, I have something in my mind. I have some recollection that just recently the Government of Nova Scotia did take over one of the mines that was closed down.



Was it in the Springhill area? If that is a political matter in Nova Scotia, I withdraw the question.

MR. MANSON: No. What is involved there is that one of the mines got into financial difficulties regarding their operations and they were not able to meet their payrolls. It was an independent operator.

THE CHAIRMAN: It was not a matter of lack of market for their production?

MR. MANSON: Well, let us say, lack of a sustained market during the summer season. To preserve the national resources, which in Nova Scotia belong to the province, we repossessed, let us say, the mine and are trying to retain it for a short while at least, to see if we cannot get another operator to take over. It was an isolated instance of an independent operator that got into financial difficulty. I might say that we are not going to operate the mine, just retain it.

THE CHAIRMAN: Thank you very much, gentlemen.



Submission of
TRANS-CANADA PIPE LINES LIMITED

APPEARANCES:

Mr. C. S. Coates

Mr. N. J. McNeill

Mr. F. P. Layton

THE CHAIRMAN: Mr. Pattillo?

MR. PATTILLO: Mr. Chairman, we are now going to hear from Trans-Canada on two subjects: one, the significance of the Niagara outlet, and, two, the problem of storage.

Mr. Chairman, the company has several short submissions, but I myself do not know the order in which they propose to put them in. So I am going to ask either Mr. McNeill or Mr. Layton when they are coming to the submission with which they wish to deal to call out the heading, and the numbering will commence with M-22-2.

MR. McNEILL: Mr. Chairman, if I might just for a moment outline what I propose to do today, I think that might assist the Commission.



Trans-Canada in appearing before your Commission for this the third time first of all hope they are not wearing out their welcome.

THE CHAIRMAN: Not at all.

MR. McNEILL: And we do appear today largely to place before the Commission additional or supplemental material dealing with specific matters, all as requested by the Commission, its counsel, or staff.

These matters include, first of all, a discussion of Trans-Canada's proposed Niagara interruptible contract; secondly, a statement regarding storage facilities in Ontario and Quebec; thirdly, and this was in answer to a specific question of Dr. Howland in Toronto, computations regarding the effect on the profitability of our proposed Emerson contract based on the assumption that all gas to be delivered under that contract would be acquired by Trans-Canada at the current wellhead price that we are offering, namely starting price of $13\frac{1}{4}$ cents; finally, and this was in answer to a further question by the Commission, we hope, and we have only just this moment, sir, got some copies in shape -- we have had some difficulty with it -- and that is a discussion of a probable effect of the use of natural gas by way of displacement and fuel oil and coal in the Provinces of Ontario and Quebec.



Those four items have been specifically requested of us. In addition, we propose to file very short statements with respect to, first, the so-called market survey of Trans-Canada's Canadian market that was submitted to you yesterday by Alberta and Southern, and as I stated to you yesterday, sir, we simply wish to file this very short exhibit to round out the record of this Commission. We do not propose to leave any testimony with respect to it, but we, of course, are quite prepared to explain any items or answer any questions.

Secondly, in our appearance before you in Toronto and in our submission concerning regulation, suggested a formula, or outlined a formula or method whereby the amount of gas available for export from Canada could be ascertained. We have again a very short single sheet which demonstrates a method of applying that formula.

These matters will be dealt with by Mr. Coates, basically, and members of our staff and consultants. As suggested by Mr. Pattillo we will indicate the item that we are coming to as we go along in order to keep the exhibit numbers accurate.

Prior to going on with these matters, sir, I would like to note, and if I might do so rather than reading them but perhaps just hand them



in to the reporter, certain mechanical corrections to the transcript contained in volumes 48 and 49 as they pertain to our appearance in Toronto on the 4th and 5th of July.

Now, sir, still referring to that transcript, I would like to clarify a wrong impression that we appear to have left with this Commission at Toronto on July 4th and 5th, namely that interruptible sales are not made by Trans-Canada. To correct that impression, reference is made to the statement of Mr. Coates transcribed at page 6795 in Volume 49 of the transcript wherein he stated in part that Trans-Canada is building no facility and no capacity for interruptible sales. The capacity of Trans-Canada is built to meet its firm peak day requirements, and on those days when it does not have peak day requirements it would either have space not used or it would have to make sales to distributors who could sell this interruptible gas on the condition that Trans-Canada could and would interrupt those sales at any time to meet high priority firm contract demand requirement.

At the same time, Mr. Coates also stated that it is not the policy of Trans-Canada to make direct sales, firm or interruptible, to industry where that industry can be served by a distribution company. If the situation arose wherein such



industry could not be served by a distribution company, Trans-Canada would then, and only then, make a direct sale to that industry. No such sales as direct sales are contracted at this time. Two copies of each of Trans-Canada's existing sales contracts were filed in February with the Commission. At the same time, in our submission made to the Commission in February an appendix to that submission contained a tabulation showing the rates for various types of services offered by Trans-Canada in each of these rate zones. Among those reported was a so-called excess, or interruptible, rate by Trans-Canada.

As has been stated by Mr. Coates, on the days when Trans-Canada is not required to meet this full peak days' requirements, it will, in the case of a producer -- that is, a distribution company who also has contracted to buy gas on a firm basis -- offer to sell the distribution company one or more of the following types of services which are of a temporary or interruptible nature: One type of service is called "off-peak service", demonstrated in a so-called Off Rate Schedule. This service provides for the sale by Trans-Canada of such gas as Trans-Canada in its full discretion has available to contract for firmly during agreed months for the period between April 1st and November 30th--that is the summer months -- and it fixes



rates covering such services on a six-months' basis, seven-months' basis, or eight-months' basis, with maximum daily quantities, and Trans-Canada only need contract for that in any given year and having once contracted, need not re-offer that service unless the same conditions prevail, that the gas is available.

The next service is the so-called "Excess Service" or "Interruptible Service". Here we provide for the sale by Trans-Canada to, as I said a moment ago, a distributor who has a firm contract, such quantities of gas in excess of that customer's firm contract as that customer may request from day to day, and which Trans-Canada in its sole judgment has available for delivery. That gas, as I say, sir, is delivered on an hour-to-hour or day-to-day basis. It is not contracted for. It is simply an operating procedure.

There is one other type of service, but it is of a different nature, sir. That is winter peak service which again is only available day-to-day or at times, and that of course is at premium prices for the sale of gas.

From what I have said, sir, I believe it becomes quite clear that interruptible sales are contemplated and will be made by Trans-Canada to distributors but not as direct sales by Trans-Canada to ultimate consumers.



Our present misunderstanding, sir, I really believe, arose out of an initial discussion that dealt with those direct sales, and if we have in any way misled either the Commission or my friend Mr. Frawley, or anyone else taking part in the proceedings, it was not our intention to do so. We felt we had disclosed the situation. I think it was perhaps it was a looseness of language that brought us to this point.

THE CHAIRMAN: In your summary I would just like to add, I do not think that you added the exception that you had once made, namely that you would sell firm to industry in an area where there was no local distributing company.

MR. McNEILL: We would make a direct sale to an industry that did not have a distributor from whom it could buy, and I would say, sir, that that sale, if made, would constitute both firm and the making available of interruptible at the times and in proportion when it was available to that customer.

Now, sir, if we might proceed with these items, I would suggest that the first item being filed with the Commission is a discussion of a proposed sale of natural gas at Niagara International Connection to Tennessee Gas Transmission Company.

---EXHIBIT M-22-2: Document entitled "Proposed Sale of Natural Gas at Niagara International Connection to Tennessee Gas Transmission Co.



Character of Service Proposed: The agreements between Trans-Canada Pipe Lines Limited (Trans-Canada) and Tennessee Gas Transmission Company (Tennessee) concerning the proposed sale of natural gas by Trans-Canada to Tennessee at the Niagara International interconnection between the two systems provides for a "Seller's option" type of service, completely under the control of Trans-Canada at all times as to either daily or annual volumes. The service is fully interruptible and provides no guaranteed volume which Trans-Canada must supply to Tennessee in any year. On the other hand, the agreement constitutes a "put", in that it provides that Tennessee will take any gas available from Trans-Canada up to 200,000 Mcf per day during any day in which Trans-Canada is able to make any deliveries.

Effect of Sale on Trans-Canada: Some of the more important effects of the proposed Niagara sale are outlined below:

1. The price to be obtained for gas sold to Tennessee is 37 cents per Mcf measured at 15.025 p.s.i.g. (36.274 cents per Mcf at 14.73 p.s.i.g., Trans-Canada's normal sales base). This will be a premium sale from the standpoint of Trans-Canada, with the price received well in excess of the cost of rendering service of this type in Trans-



Canada's Central Rate Zone.

2. The sale is, in effect, "insurance" that Trans-Canada will be able to keep its pipe line sales volumes in the East at a maximum at all times. On the odd day (such as over weekends and holidays, during periods when there are strikes in industries curtailing industrial volumes taken by the distribution companies or in the instance where certain of the loads are slow in development) this "put" will enable Trans-Canada to have an alternative place to sell its gas and thus keep its sales at a maximum at all times. In addition, the working relationship with Tennessee will make more feasible a mutual assistance arrangement, whereby in time of emergencies either line could be of assistance to the other in the maintenance of continuous service.



3. By keeping the through-put of the line as constant as possible, regardless of variations in the day-to-day sales to the distribution company customers of Trans-Canada, the sale at Niagara will improve the buying position of the company with natural gas producers in Alberta. The constant day-to-day "takes" which such sale will help insure will reduce the day-to-day variations which producers must experience and will allow the company to make contracts with tighter leeway provisions more acceptable to the producers.
4. To the extent that gas is available for sale to Tennessee at Niagara, such sales will improve the earnings and hence the economic picture of Trans-Canada. If we consider such sales on the basis of 1 billion cubic feet at 14.73 p.s.i.g. (the Trans-Canada normal sales base) the company will receive revenue from Tennessee for each such billion cubic feet of \$362,740. The cost - including additional gas for the sale, plus gas for compressor fuel to move the additional volume East, plus transportation charges paid to Alberta Gas Trunk Line, plus Crown Section rental until the Crown Section is finally purchased - will total under \$260,000 in all



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of the first five years of operation. The net revenue from the sale of each billion cubic feet will thus be in excess of \$100,000 in each of these years, or at a rate slightly in excess of 10 cents per Mcf on a unit basis.

An increase of 1% in Trans-Canada's annual load factor in the year 1962-63 as a result of this ability to make sales at Niagara would mean additional net income to Trans-Canada on the order of \$275,000, based on Canadian sales alone, or on the order of \$350,000 including the sale at Emerson.

THE CHAIRMAN: Thank you, Mr. Coates. I don't know how Counsel propose to deal with this matter that is now going to arise as a result of four or five Exhibits coming in.

MR. PATTILLO: I think we should deal with each one.

THE CHAIRMAN: I would think so.

MR. PATTILLO: Now, is this contract to which you have just been referring conditional on the company receiving an export permit to export the gas from Emerson?

MR. COATES: Yes, it is.

MR. PATTILLO: In other words, if the Government of Canada should see fit not to grant an export permit for the export of gas at Emerson,



then this contract is non-existent.

MR. COATES: Yes, sir, that is correct.

MR. PATTILLO: Now, how does this price of 36.274 cents compare with the price of interruptible gas offered in the central zone?

MR. COATES: I don't have a rate schedule with me, Mr. Pattillo, but I believe I can recall from my memory. Our interruptible sales price in the central zone is 30 cents per 1,000 cubic feet, which would compare with this sale at 36.274 cents per 1,000 cubic feet.

MR. PATTILLO: So that if you were offered by a Canadian distributor the sale of some interruptible gas, it wouldn't be as profitable to you as this contract.

MR. COATES: That is correct.

MR. PATTILLO: And yet this contract is in effect, so far as you are concerned, also a sale of interruptible.

MR. COATES: It is strictly an interruptible sale. I would like to enlarge just a little, Mr. Pattillo, on making a sale to an interruptible customer in Canada at 30 cents rather than this more profitable sale. It has been Trans-Canada's policy to attempt to service the Canadian market. That is our first aim in life; that we intend to do; that is our policy, and, based on that policy, I am sure that the Government





of Canada would not allow Trans-Canada to make any sale across the border until such time as the market is completely filled in Canada with all types of service that Trans-Canada have available.

MR. PATTILLO: Now, how does this price compare with the price in the central zone for gas which is purchased in the summer months, gas that you were talking about?

MR. COATES: Six months?

MR. PATTILLO: Yes.

MR. McNEILL: Six months gas is 35 cents, seven months gas is 36 cents, eight months gas is 38 cents.

MR. COATES: Mr. Pattillo, that gas, of course, is not interruptible gas; once that is made for a six, seven or eight-month period it is a firm sale for that period of time and we must make the delivery.

MR. PATTILLO: That is gas, for example, that would quite often be bought to go into storage.

MR. COATES: It could very easily, yes.

MR. PATTILLO: You have told us in this memorandum what the revenue would be if you were permitted to carry out this contract and the profit that there would be in carrying out the contract. If you are not permitted to carry out the contract because you cannot get an export permit



at Emerson, have you looked into the question as to what effect that would have on your present tariffs to Canadian distributors? Would that require you to increase your rates immediately?

MR. COATES: No, sir, I can't see where it would require us to increase our rates immediately. I believe that it is necessary, as we have said here before, that there be sales made that would fill the summer period, and it is on that basis that we have to arrive at our rates with sales made so that the pipe line can operate as near to 100 per cent load factor as it can.

MR. PATTILLO: What I was getting at, Mr. Coates - when you were working out your cost of service figures for the purpose of arriving at what rates you were going to establish, was this contract taken into consideration?

MR. COATES: May I ask Mr. Tippy to answer that?

MR. TIPPY: Mr. Pattillo, in working out the cost of service which appeared in the reports which have been presented, not only to this Commission but also in connection with financing, we had no way of estimating how much gas, if any, would be available for the sale at Niagara. As a result, we reflect the sales being made to Canadian customers and we show no figure for a sale across the border at Niagara in our feasibility figures. The sale



across the border at Niagara is a plus, and, as Mr. Coates pointed out in his memorandum, it takes care of unforeseen eventualities, conditions in the Canadian markets, where, due to a number of circumstances, they would not be able to absorb the volumes of gas they would normally be able to take. So I think this is insurance that the revenues and the income of Trans-Canada would remain intact even in the face of possible minor variations in the Canadian load. So there is no figure for it precisely in our working papers.

MR. PATTILLO: Now, it has been suggested to me, Mr. Coates, that the difference between the price of interruptible gas in the central area of 30 cents and this price of 36.274 cents really represents just about the cost of transmission to the Niagara outlet, and that for true comparison of the prices you should assume that they are the same. Is there anything in that?

MR. COATES: First I would say that interruptible sales in Canada would also be available at or near the Niagara River to distributors who would be purchasing gas there, and that gas would also have to be transported.

MR. PATTILLO: Provincial Gas - -

MR. COATES: They can buy at 30 cents.

MR. PATTILLO: And immediately across the river it is 36 cents.



MR. COATES: Yes. For that reason I don't see that the statement is correct. There is an additional cost on to this. However, if you made no sale at the Niagara line and operated at a line of delivery which is seller's option gas, you are getting 6.274 cents for it through approximately 70 miles of pipe line, and I wish I could get 6.274 cents for every 1,000 cubic feet for \$2,200.00.

MR. PATTILLO: Having regard to the line coming fully operative this Fall and having seen what your markets have built up to, have you been able to make any study as to what will be the probable amount of gas that you would sell under this contract, say, in your first fiscal year of full operation?

MR. COATES: No, we have not. We are in the process of doing that at the time to try to determine what we may be able to have available for sale to Tennessee, so they could make some plans in applying for a permit from the Federal Power Commission for the import of gas.

MR. PATTILLO: They have made no application for that permit?

MR. COATES: No, sir, they have not.

MR. PATTILLO: Then we may be talking about a pretty theoretical thing, may we not, if it takes them so long to get that?

MR. COATES: Yes, it is quite



theoretical if it takes as long as the other.

MR. PATTILLO: When you do make those calculations you are talking about, will you please file them with the Commission?

MR. COATES: Yes, we will be glad to.

MR. PATTILLO: When do you anticipate you might be able to file that?

MR. COATES: Mr. Pattillo, I hesitate to say right at this moment. We will put it in as quickly as we can. We may come up with a blank, I don't know. We are making the effort. We will give you what we can find.

THE CHAIRMAN: Mr. Coates, or perhaps Mr. McNeill can answer this; has a copy of this contract between Tennessee Transmission and Trans-Canada been filed with the Commission?

MR. McNEILL: Yes sir, a full copy was filed in February, I believe, we filed fifteen or twenty sets of our contracts. I have a few copies here if the members of the Commission would like them for present reference.

THE CHAIRMAN: No, it is in the material?

MR. McNEILL: Yes.

THE CHAIRMAN: Has an export licence been granted by the Canadian Government?

MR. McNEILL: No sir, it has not been applied for. You see, this sale is dependent on the Emerson sale and the difficulty in applying is whether you are applying prematurely because it is not a firm contract until the other one comes to pass. At the same time, in connection with what Mr. Pattillo asked Mr. Coates a few moments ago, I would suggest that it is reasonable to expect that an application before the Federal Power Commission in connection with the Niagara interruptible sale would not be as protracted a matter as the Emerson one. We do not go so far into things to tread on anyones toes.

THE CHAIRMAN: I would think that



anyone acquainted with the terms would hope your prognostication was correct.

MR. COATES: I would like to say that all the facilities required to make this sale are already in, there will be no application for additional facilities by the parties involved.

THE CHAIRMAN: I think the Commission understands that, but I doubt if any members of the Commission - I certainly did not understand that this outlet was so fully contingent upon the Emerson.

MR. COATES: Yes sir, unfortunately it is.

MR. FRAWLEY: Mr. Coates, what field price did you use when you were calculating the total of \$260,000.00 that is shown in paragraph 4 on page 3 of this memorandum?

MR. COATES: Mr. Tippy could tell you that.

MR. TIPPY: We used the average price of gas estimated to be paid by Trans-Canada on each of the years on the theory that we did not know which piece of gas it was, it was just gas on the day it happened to be available.

MR. FRAWLEY: Well, your working papers show what you used because you have a precise figure here.

MR. TIPPY: That is correct. Mr.



Frawley, I can give you the average price as worked out from some of our earlier studies but they are just listed from those earlier ones as submitted in Calgary, and the cost of gas plus - all I have is the cost of gas at the wellhead plus the Alberta Trunk Line 4 cent transportation charge which starts at 14.00391 in the year 1958-59 and in the year 1962-63 due to the weighting of some of the higher priced gas in that year and the escalations that go on from year to year, it worked out to 16.23650 including the 4 cents for trunk line.

MR. FRAWLEY: Perhaps I have not made my position clear to you but you show a figure of \$260,000.00 in all of your first five years of operation and we thought you would be able to give us the make-up of that figure.

MR. McNEILL: We stated that it was slightly under \$260,000.00 in each instance.

MR. FRAWLEY: Yes, so we thought that there must be some figure and that you could give us the make-up of that figure.

MR. TIPPY: I can give you the make-up of those figures by years if the Commission pleases.

MR. FRAWLEY: Just give us something that will tell us what field price you used.

MR. TIPPY: Those prices I just



gave you are the ones that go into the calculation.

MR. FRAWLEY: Can you give us the pressure base also?

MR. TIPPY: These figures here are all reduced to the sales pressure base 14.73 regardless of what they start out at at the well-head, 14.4, I believe, for each year. The costs we have are made up of three figures, first is the cost of gas per billion cubic feet, we put this in billion cubic feet, wellhead cost plus Alberta transportation. The second one is the allowance for the cost of gas for compressor fuel, additional compressor fuel related to the sale, and the third is Crown section rental. The fourth would be total deductions.

MR. FRAWLEY: Well, you can give me that for one year?

MR. TIPPY: Yes, I will give it to you for the last year where the figures are highest: In the last year, 1962-63 the cost of gas including Alberta transportation charge is \$166,086.00, cost of gas for compressor fuel is \$15,156.00, and the Crown section rental is \$77,456.00, and the total deductions in that year are \$258,698.00. That is the highest year of the five.

MR. FRAWLEY: Thank you, Mr. Tippy, that is all.

MR. McNEILL: The next document is



a submission regarding storage facilities in Ontario and Quebec and we propose that Mr. Horte who is the gas supply engineer from our Calgary office should read this submission and handle any subsequent questions. However, if you prefer, Mr. Coates is prepared to read it and I would suggest that it be marked as M-23-3.

--- EXHIBIT NO. M-²²~~23~~-3: Submission of Trans-Canada Pipe Lines Limited on gas storage.

MR. COATES: For the assistance of this Royal Commission on Energy, Trans-Canada has made an investigation concerning the economic availability of gas storage in Eastern Canada, and presents its views as to the effects of such gas storage on the operations of its system.

In its investigation, Trans-Canada has studied the data submitted to this Royal Commission by the Union Gas Company of Canada, Limited, and The Consumers' Gas Company. In addition, it has made use of all of the data made available to it by the Geological Survey of Canada, Union Gas Company of Canada, Limited, and the Ontario Fuel Board.

Of the presently known fields in Eastern Canada, certain fields in South-western Ontario appear to us to be suitable for gas storage. A tabulation entitled - "Fields Classified



According to their General Availability for Gas Storage" is attached hereto, and lists these fields and their estimated gas storage capacities. Union and Consumers' are presently storing gas in certain of these fields and have plans to expand to other fields as their markets and their need for storage continues to grow.

The use of gas storage by a distributing or transmission company is dependent upon the cost of such storage, and this in turn to a large extent is a function of the distance from storage field to market area. From an evaluation of this distance factor as related to the economic use of available gas storage in Southwestern Ontario, we concluded that the usefulness of these available storage fields will be limited mainly to serving the distributing areas of Union Gas Company of Canada, Limited, and The Consumers' Gas Company (Central Zone) in Ontario. It is interesting to note in this regard that most of the fields presently being used for gas storage in the U.S.A. are located at a distance of less than 200 miles from the market they serve.

Trans-Canada does not own or control any gas storage facilities in South-western Ontario; however, it benefits greatly from this use of storage by Union and Consumers'. To illustrate the benefits which Trans-Canada enjoys indirectly



from the use of this storage, we attach hereto a tabulation entitled - "Estimated Peak Day Use of Storage by Union and Consumers' and its Effect on the Load Factor of Trans-Canada Pipe Lines".

This table shows in columns 13 and 14, respectively, the estimated load factor on the Trans-Canada system and an estimate of the load factor on this system which would result if storage facilities were not available to Union and Consumers'. This comparison shows, by years, that Trans-Canada's over-all load factor would be lowered from 90% plus to approximately 65% if it were not for these storage facilities. From this comparison we conclude that Trans-Canada's cost of transmission would be increased by some 40% if storage facilities were not available to Union and Consumers'.

In evaluating the effect of storage on Trans-Canada's load factor as shown in the abovementioned table, it was necessary to relate the estimated amount of storage that may be required by Union and Consumers' to the amount of available storage in Southwestern Ontario.

An estimate by years of the amount of storage that will be required by Union and Consumers' is attached hereto and entitled - "Estimate of Storage Use Required by Union Gas and Consumers' Gas (Central Zone)". This tabulation is based



on the assumption that Union and Consumers' will continue to purchase gas on a load factor basis consistent with the present contracts they have with Trans-Canada, and shows the estimated peak day and winter withdrawals required as a result.

By relating the needs of Union and Consumers' for storage with the availability of storage in Southwestern Ontario, we conclude that based upon present day economics storage is being developed to the extent that it can be effectively utilized, and that sufficient storage can be developed as needed to meet the future needs of Union and Consumers' over the projected 30-year period.

We further conclude that the high load factor operation afforded the distributing companies and Trans-Canada Pipe Lines by this usage of storage is of great benefit to consumers and producers of gas alike.

THE CHAIRMAN: Mr. Pattillo?

MR. PATTILLO: Mr. Coates, in your study of gas storage did you reach any conclusion as to whether in the future or the present gas storage could be developed which would wipe out the necessity of having sales of interruptible?

MR. COATES: Mr. Pattillo, I do not believe there are sufficient storage fields available now or that will be available in the future



so that all interruptible gas can be stored. I just do not believe that there is enough there. Perhaps my geological friend could assist with the question.

MR. HORTE: The conclusion we reached on looking at this storage, there appears to be available presently what amounts to approximately enough to look after the 30-year requirements of the Union and Consumers' market if their market protraction is assumed as being that which will take place over the next 30 years. We further concluded that because of the location of the particular storage fields that the economics of storing would limit their use mainly to Union and Consumers' market area and, therefore, that the fields would continue to be developed for storage as the market needs increased in this area and that eventually all of the presently known storage areas would be economically used in the Union and Consumers' area.

MR. PATTILLO: Let me see if I understand what you are saying. Union told us this morning that they did not sell any interruptible gas, do I understand you to say that because of the storage fields that it will be possible for both Consumers' and Union to operate without selling any interruptible gas?

MR. HORTE: No sir, I believe Union



in their market estimates continue throughout the 30-year period at about their present load factor, in fact, their load factor became slightly smaller than it is presently so they are not including interruptible industrial sales in their market estimate. However, Consumers' make some industrial sales that is reflected by their market load factor of approximately 50 per cent which they continue throughout the 30-year period. I would therefore assume that they would continue to purchase on about their same ratio as they are presently doing with respect to interruptible gas and with respect to storage facilities.

MR. PATILLO: Can you develop this, Mr. Coates? From your experience in the gas business if I am a distributing company and I have storage facilities, what factors do I take into consideration as to whether I am going to store or whether I am going to purchase interruptible?

MR. COATES: Well, I think you have to take into consideration, and I would like to preface by saying I have never been in the distributing end of the gas business, but I believe considerations would have to be given to the cost of storage, the cost of the gas to be stored and the type of service that the distributor is rendering. For instance, as Union says, they make no interruptible sales, they depend entirely on their storage and



make it possible for them to operate at a high load factor that they have to continue to do, they must be able to buy gas at a price that will enable them to spend the money necessary to store the gas, recover it and deliver it to people who finally use it. Now, a company such as Consumers' that does not have large storage available to it yet has a very high peak demand, I think you have to try to store gas that they anticipate they would need for a very - if I may use the words - peak, peak area where they would handle the contract demand quantity that they have purchased from a transmission company they would like to have in storage or would find it necessary to - they would like to have in storage and use that gas at that time or they would have to make some gas or they would have to have some additional service for a higher price gas from the transmission company. I think that it needs to be pointed out that gas that is stored becomes a higher priced gas than gas delivered directly from the transmission company and then from the distribution system and on to the ultimate user. The general practice has been, with the exception of the Union, they are the only ones I know of who depend on their store of gas to take over a considerable amount of their load factor in the winter months, but the general use of storage is for meeting all other requirements that cannot be



met by a pipe line that is constructed to meet its peak day demands or its contracted peak day demands and there are many days like that. I think more particularly that happens with our system more often than practically any others on this continent, since we are running entirely within the same temperature zone. If a pipe line meets a peak demand from every customer it has, then the facilities are entirely used, and if there is an additional demand for gas there is no peak gas available to anybody, then those who have storage are in a preferred position and this gas with a distributing company, I will not say they will pay any price, but they are certainly willing to pay a premium for gas because it is necessary to have gas to keep their services up.

MR. PATTILLO: From you experience in the gas business in the United States prior to coming to Canada, who operated the storage facilities, transmission companies or the distributing companies?

MR. COATES: There are all sorts of variations, some of them are operated by the transmission companies, some are operated jointly with distributing companies and some operated by distributing companies who purchase gas during off-peak times from the transmission companies and store it and use it as they find necessary.

I would like to make an observation



here, subject to correction, but in my own experience with long transmission lines, I know of no such facility that started in the storage business in the first year of their operation. There are several of them who do store gas either for their own accounts, jointly with others or just because the others have storage at the present time, but in each instance it was several years after the companies were in operation and after a market was more firmly established.

MR. PATTILLO: Well, what is the significance of that, Mr. Coates, in your opinion?

MR. COATES: Well, money is a rather important part of it. In order for a company to buy gas in the field, build the facilities to transmit it and carry all of those costs themselves would require considerable additional money to operate on in the years when, historically I think you will find, the gas transmission lines, long lines such as ours, need a development period and at the very time they would need to be developing a market and selling all the throughput that they possibly can, they need the cash at that time, and I think that is one of the prime reasons why. I think market development probably has something to do with it, if the market develops and your firm demand for preferred market increases to meet the firm demand for the preferred market it becomes



necessary at times, as I related a minute ago, to go even beyond the capacity of your system to deliver.

MR. PATTILLO: Would you say in your opinion there is any significance in the fact that Union Gas is supplying an area where natural gas had been in use for a great many years?

MR. COATES: Well, I think Union has a rather unique condition, Union has had gas production in south-western Ontario, I think it has been on a limited basis and they readily admit that, and in order for them to have market growth it was necessary for them to purchase gas from the United States. This gas was not available on a firm month-to-month basis, it was available to them only during a period of the year when they actually did not require the gas to meet their own services and they bought it and stored it, and I think their operation is unique as far as my personal knowledge is concerned. I think they did exactly what they should do.

MR. PATTILLO: Now, regarding this study you made of possible storage facilities, was that made from records or was it made from on the ground survey?

MR. HORTE: It was made mainly from records and as a result of discussions that we had with the Union people, the Consumers' people,



the Ontario Fuel Board and Imperial Oil who have done a great deal of the exploratory work in this south-western part of the province. We were unable in the time to make detailed studies as to the reserves or the limits of the various fields in Ontario. However, as a result of discussing the various fields with the people in the area we particularly in our discussions obtained data as to the producibility of the fields, the aerial extent of the fields, the quantity of the gas which now may be in the field, all of which are factors that must be considered in the economics of using a storage field.



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After discussing this with the various people I have mentioned in Ontario, we came to the conclusion that the fields we have selected in our first tabulation are the fields, the first two groups, are fields which Union has mentioned in their submission, as fields in which they now have storage facilities in or plan to use for storage in the very near future. The fields listed under items 3 and 4 -- in 3 in particular, are relatively small fields, but they are in and around the same general area as the Corunna and Waubuno fields. While these fields listed in 3 are relatively small, they are pinnacle-type reefs which on the basis of our study appeared to us to be the best type of storage facility in this area because of the very good delineation of most fields and fairly high deliverability characteristics and small areal extent, thereby reducing the amount of gathering facilities required in the area. While this may not be desirable in the case of the fields shown in three to convert them to storage immediately, it was our feeling that eventually, as the more desirable fields became used up, the fields such as these may be converted to storage. The same pertains to fields listed under four. The fields under three are producing small quantities of oil, and the fields under four, while not producing oil, are fairly small and again we think they would be



developed after the more desirable fields.

THE CHAIRMAN: Mr. Frawley?

MR. FRAWLEY: Mr. Coates, it would appear that in the eastern zone you will have to operate your system without any storage at all?

MR. COATES: Yes, sir. I believe that is correct. There is no known storage in the area.

MR. FRAWLEY: That means, I suppose, that you have a different sort of operation profit-wise in the eastern zone, where you have no storage, as compared with the central zone, where you do have storage? Does that follow?

MR. COATES: I do not follow your question.

MR. FRAWLEY: Does it follow that you have a different kind of operation profit-wise in the areas where you have no storage as compared with the areas where you have storage?

MR. COATES: No, I do not see that it makes any difference.

MR. FRAWLEY: There is no connection between those two at all?

MR. COATES: No, sir.

MR. FRAWLEY: Will the price of gas in the eastern zone, because of the fact that you have no storage there, be higher than in the central zone, where you do have storage?

MR. COATES: No, sir, not due to storage or the lack of storage.



MR. FRAWLEY: But there is a higher price in the eastern zone, but you say that has nothing at all to do with the presence or absence of storage?

MR. COATES: It has to do with the miles from the source.

MR. FRAWLEY: And nothing else?

MR. COATES: It had to do with negotiating the best type of contract we could get.

MR. FRAWLEY: I see. Your evidence is, then, that there is no advantage price-wise to the ultimate consumer whether you have storage or not, is that right?

Mr. Coates, just bear with me. I am just feeling my way. You have told me you have no storage in the eastern zone and you have storage in the central zone. I am only asking you two questions. I just want to know whether or not the price is higher in the eastern zone because you have no storage.

MR. COATES: No, sir, it is not higher because of lack of storage.

MR. FRAWLEY: All right. Then there is no disadvantage, then, in the eastern zone because you have no storage there?

MR. COATES: I think there is a disadvantage as far as the distributing company is concerned, in that he has got to find enough sales to make it possible for him to buy at a high load factor, so he can buy gas at the best price he can.



He either has storage to put it in or he has to sell interruptible gas.

MR. FRAWLEY: It comes back to this, that you have a better load factor in the area where there is storage available?

MR. COATES: No, sir, we do not.

MR. FRAWLEY: I wish you would explain that.

MR. COATES: I have just said we do not have a better load factor in the central zone than we do in the eastern zone -- it would be principally Quebec Natural Gas, since it is our principal purchaser, they purchase from us on a 90 per cent load factor basis.

MR. FRAWLEY: And they are able to do that, lacking storage, by making interruptible sales?

MR. COATES: Yes, sir, I presume that is what they are going to do.

MR. FRAWLEY: We have the relationship between storage and interruptible sales in fairly good juxtaposition. Where you have no storage, then, you have to go to interruptible sales -- is that the situation?

MR. COATES: You have to have something that you can operate at a high load factor with.

MR. FRAWLEY: I see. You must have the high load factor to make your operation profitable, in your view?

MR. COATES: Any company that operates a



long line gas transmission company must have a high load factor to make a decent profit, or any profit, whether it be going to California or going to Montreal.

MR. FRAWLEY: And you achieve that high load factor either by having adequate storage or by making interruptible sales?

MR. COATES: Yes, sir.

MR. FRAWLEY: And the fact that you have no storage in the eastern zone, as I say, is a matter of distance from the storage that you have contracted for? It would not be economical to take gas from the Dawn field, where it has been stored and sell it in the eastern zone?

MR. McNEILL: I do not want to be difficult, but we have said categorically that we have no storage. The Union Gas Company has storage and Consumers' Gas has. We have none. If Mr. Frawley will distinguish between the distributor and the pipeline company, I think that Mr. Coates will be far better able to meet and answer his questions.

MR. FRAWLEY: I hope my friend, Mr. McNeill, does not think I am asking questions just to be difficult. I am feeling my way in a matter that is rather difficult, and my friend, Mr. McNeill has been living with this Trans-Canada Pipe Line for years on end, and I have not been, and I ask my friend Mr. McNeill to bear with me and not to be



quite so short-tempered.

THE CHAIRMAN: I would not worry about tempers. We have all been living with a lot of natural gas for some time.

MR. FRAWLEY: Mr. Chairman, after all I represent the province from which this gas comes and I think that I would hope that my questions would be received with a little more cordiality than that with which they have been received either here or in Toronto.

THE CHAIRMAN: Can I reframe your question for you, Mr. Frawley, and see if I can see exactly what you want. Assuming that storage was available in the central zone to Trans-Canada, they have not got storage in the eastern zone and they could not draw gas from the storage in the central zone and market it economically in the eastern zone? Is that it, Mr. Frawley?

MR. FRAWLEY: That is my question.

THE CHAIRMAN: I got the same difference that Mr. McNeill did, in all fairness, in your question, but I knew what you intended. Mr. Coates, would you answer that question?

MR. COATES: Mr. Chairman and Mr. Frawley --

MR. FRAWLEY: May I say before Mr. Coates answers the question that that is precisely the attitude that I thought I would receive. He has distinguished something that was not



quite correct and complete in my question, and I thought Mr. Coates would appreciate it in some way and answer the question accordingly. I am not here as an antagonist to Trans-Canada Pipe Lines.

MR. COATES: I do not believe it would be economic to store gas in southwestern Ontario, say, in the Dawn fields, for delivery in Montreal at some later date.

MR. FRAWLEY: All right.

THE CHAIRMAN: Because of the distance?

MR. COATES: The distance of approximately 450 miles.

MR. FRAWLEY: That was the purpose of my question -- just to get that answer. That is all, sir, thank you.

THE CHAIRMAN: Thank you.

MR. COMMISSIONER HARDY: Mr. Coates, following on that same line, on a more cheerful note perhaps, supposing that your main line went through southern Ontario, supposing it was along the Interprovincial Pipeline, would not your position on storage be quite different than it is now economically if you had it adjacent to your main line?

MR. COATES: Yes, sir. I think it would be a considerably different picture. Unfortunately, the Government of Canada did not wish Trans-Canada Pipe Lines to build a pipeline along the route of Inter-



provincial. I would like to qualify that, Dr. Hardy, to this extent, that it would be a different picture so far as Trans-Canada's operations in that immediate vicinity are concerned. I think that if you go on **beyond** that you will have still got a pipeline that would extend, say, from the storage areas onto Montreal. This would have to be built to meet the Montreal peak, and storage would be still some several hundred miles away.

MR. COMMISSIONER HARDY: Yes, but what I am coming to is that it would look to me that, if you were in that position, taking that hypothesis, that the economics of handling the storage would be quite different than it is now with the storage being handled through the marketing facilities of two specific distribution companies.

MR. COATES: I do not know whether we could do a very economic job. I think there would be a difference certainly in the cost of the project, because you would not have so far to go with the gas to be stored. If we passed through the area, we would be there with the excess gas, and I believe Mr. Palin said this morning that the transportation charge to and from the field is a rather considerable item as far as they are concerned. If the pipeline could deliver directly in the field area, it would save a considerable amount of the cost of storage. If Trans-Canada did it itself or as a joint



operation with Consumers', or if they did it, the economics of the storage, that is the preparation of the storage fields and the injection and withdrawal, I cannot see that it would have a material effect.

MR. COMMISSIONER HARDY: I was not saying that you might or might not operate the thing more economically. I was saying you might find yourself putting a different dollar value on each thousand feet in storage than is the case now by Consumers' and Union. Is that not possible?

MR. COATES: Yes, sir, I think it is possible.

MR. COMMISSIONER HARDY: Would I be correct in assuming that there has not been a too detailed analysis made at any time of all the possible implications of this storage problem, taking into account - -

MR. COATES: Dr. Hardy, I have been with Trans-Canada four years now. A good deal transpired in the company prior to that time, and the route of the pipeline had been fixed prior to my association with it. What transpired in the investigation of this problem prior to August, 1954, I cannot say.



However, I can say that shortly after I joined Trans-Canada, I did visit with those who own and operate fields in that area, both storage and producing fields, to try to determine whether or not it was best for Trans-Canada to attempt storage, or whether it would be just as well if someone else did it, as long as the job was done to some extent.

MR. COMMISSIONER HARDY: I wasn't criticizing, Mr. Coates ---

MR. COATES: I realize that, sir.

MR. COMMISSIONER HARDY: -- the route of Trans-Canada, or what was done. I was thinking more in terms of the next step they have to apply for more gas.

MR. COATES: Sir, there had been no investigation made at this date as to the route of, say, the second pipe line that Trans-Canada will have to build. I think all possible routes would be investigated with the thought in mind, or perhaps just what you are thinking, of going directly to the storage fields with it so that we might get more economical storage.

MR. COMMISSIONER HARDY: Thank you for implying I was thinking that.

MR. COATES: From your questions I gathered that.

THE CHAIRMAN: Thank you very much, Mr.



Coates. What is the next one, Mr. McNeill?

MR. MCNEILL: The next one, sir, we do not have an exhibit for, but Mr. Coates has material in his hands to enable him to answer questions of Dr. Howland concerning the matter of Emerson export and its profitability as compared to the Canadian operation, assuming the purchase of $13\frac{1}{4}$ -cent gas entirely for Emerson export.

MR. COATES: I have prepared an answer, Dr. Howland. If it is permissible, I will read it:

At the Toronto hearings July 5th, Dr. Howland asked me whether the Emerson export would still be profitable to Trans-Canada if we assigned to it only higher priced gas purchased on the basis of our 13.25 cent Gas Purchase Rate Schedule. He also asked that we compare the profitability of the Emerson export on such basis with the profitability of Trans-Canada's Canadian sales. I have had such a computation made.

As to the Emerson sale itself, based on allocation, generally employing the FPC's Seaboard Case method, of Emerson's share of the cost of service related to the main line facilities west of Winnipeg plus 100 per cent of the cost of service related to the Emerson Lateral and assuming Cost of Gas Purchased all relates to gas purchased under our 13.25 cent base price Gas Purchase Rate Schedule,



the sale is always profitable. We believe the basis of allocation used to be a fair one.

As to relative profitability, the following comparison as between rate of return on Canadian sales, if there were no Emerson sale made at all and the rate of return on the Emerson sale, determined on the basis I have outlined above, may be made by years:

	<u>Emerson Sale</u>	<u>Canadian Sale</u>
1959-60	8.66%	, 3.90%
1960-61	7.04%	6.60%
1961-62	5.92%	6.79%
1962-63	5.44%	5.93%

(All of the above reflect payment of no income tax since none would in fact be payable in those years).

From this it can be seen that even if we allocate the higher cost gas to Emerson, the export sale produces a higher rate of return during each of the years 1959-60 and 1960-61 than the return on the Canadian sales if no export sale were made at Emerson at all. During the years 1961-62 and 1962-63 the Canadian sales produce the higher return.

While base figures are not available to make the precise calculation it is predicted that in the year 1964-65 the Emerson sale would again produce the higher return as a result of the price escalation in that contract of approximately one



cent per Mcf which comes into effect that year.

If our friends south of the border do not act on the application of Mid-Western prior to November 1st, 1958, then our sales at Emerson would be approximately one cent more commencing in the first year of delivery; so that those percentages at Emerson would of course be increased as a result of that.

THE CHAIRMAN: Are you losing sleep worrying?

MR. COATES: No, sir, I am not.

THE CHAIRMAN: Mr. McNeill, what is the next one?

MR. MCNEILL: Sir, we have at this point come to a fairly long item. It is the one I referred to as being the other question, namely forecast of the probable impact of Trans-Canada gas sales on the market for oil and coal in Ontario and Quebec. We have now got that material in our hands. We have extra copies, I think, now of the memorandum that we could distribute, but it is five pages long. I didn't know whether you wished to proceed with it, with the reading of it at this point.

THE CHAIRMAN: Have any of us had an opportunity to read it?

MR. MCNEILL: No, sir, including myself. It arrived while we have been sitting here.



THE CHAIRMAN: Then I am sure counsel would like to deal with it during lunch.

MR. McNEILL: Yes, I was going to suggest that we could certainly distribute it. We apologize for this.

THE CHAIRMAN: No, no.

MR. McNEILL: That is the position. Then is it your idea to read this now, sir?

THE CHAIRMAN: No, I think if you distribute it to counsel and perhaps if the Commissioners could have copies -- have you sufficient copies?

MR. McNEILL: We have at the moment seven copies, sir, and we expect to have more copies by noon.

THE CHAIRMAN: It is more important that counsel have it. They will be doing the questioning.

Well, then, I would suggest we adjourn, gentlemen, to reassemble in this room at two o'clock.

---Whereupon the hearing adjourned until 2.00 p.m.



---On resuming at 2.00 p.m.

THE CHAIRMAN: Gentlemen, the Commission will now resume its hearing.

Mr. McNeill, you are about to present a submission?

MR. MCNEILL: A submission entitled "Probable Impact of Trans-Canada's Gas Sales on the Markets for Oil and Coal in Ontario and Quebec for the Year 1962-63".

Sir, I would apologize for the deficiency of copies. We are having it mimeographed -- it has been mimeographed, and it is presently being assembled, and we will have more copies to leave with the Commission and other people in this room during the next hour or so. It occurs to me that, in view of the fact that we have been so late with this, it has given no one an opportunity to prepare for questioning on it. If that is the case, why, of course, we are quite prepared to make available the people who are responsible for preparing it or to supply additional working papers or any information. I wonder if, in the light of that, you might wish to have this taken as read?

THE CHAIRMAN: I had an opportunity of reading, during the luncheon interval, a copy that counsel had, and I think that is a sensible



suggestion. As a matter of fact, it is a very important memorandum.

MR. McNEILL: I don't want to make excuses for being late, because if we go back on the transcript we find that four of the major oil companies have promised this same information, and our last advice is that none of them have filed it with the Commission.

THE CHAIRMAN: I think that is very fair. I don't think that counsel, at this short opportunity to consider it, want to ask questions. Is that right, Mr. Pattillo?

MR. PATTILLO: That is quite right, Mr. Chairman.

THE CHAIRMAN: Mr. Frawley?

MR. FRAWLEY: Mr. McKinnon has seen it, but he does not wish me to cross-examine.

MR. McNEILL: I might say that we extend the same offer as far as the Province of Alberta is concerned.

THE CHAIRMAN: Thank you very much, Mr. McNeill. I think we can take it as read.

MR. McNEILL: It will be Exhibit No. M-22-4.

---EXHIBIT NO. M-22-4: Document covering Probable Impact of Trans-Canada's Gas Sales on the markets for oil and coal in Ontario and Quebec for the year 1962-1963.

The document reads as follows:



"This presentation aims to show how the sales of Trans-Canada's gas in Ontario and Quebec may reasonably be expected to affect the sales of oil and coal on the assumption that Trans-Canada's pipe line had never been built.

"The natural gas to be sold by Trans-Canada to distributing companies in Ontario and Quebec for resale to customers in those provinces, as forecast for the year 1962-63, will amount to 227 billion cubic feet and is to be distributed approximately as shown in the table below. The quantities are based on submissions made to the Commission in Calgary last February.

(Billions of Cubic Feet)

<u>Type of Use</u>	<u>Ontario</u>	<u>Quebec</u>	<u>Total</u>
Residential and Commercial	71.0	25.4	96.4
Industrial	95.8	35.0	130.8
Total	166.8	60.4	227.2

The total sales of Trans-Canada's gas will represent, according to our estimates, approximately 20 per cent of the total residential, commercial and industrial fuel requirements in the two provinces in 1962-63.

" Approximately 23 billion cubic feet of the 96 billion cubic feet of gas to be sold for residential and commercial purposes, and



and approximately 11 billion cubic feet of the 131 billion cubic feet of gas to be sold for industrial purposes will replace manufactured gas and imported natural gas already being sold in 1958.

"While much of the 73 billion cubic foot balance of the Trans-Canada gas to be sold for residential and commercial purposes will replace sales which otherwise might go to oil heat, the widespread availability of natural gas in addition to oil should induce a larger number of small property owners to replace or convert heating equipment now burning solid fuels. Also, the initial cost of installing gas heat is lower than that of installing oil burning equipment, and the combined selling efforts of the gas industry and of the oil industry should be more effective than those of just the oil industry.

"The additional effect of natural gas on coal as a domestic and commercial fuel may not be great because there already is a trend away from this solid fuel to automatic heat. The Dominion Bureau of Statistics yearly sample survey shows that the number of households heated with coal in the two provinces decreased annually by about 66,000 households during the past three or four years, and there



was a parallel yearly decrease of some 30,000 households that used wood as the principal heating fuel. Gas is expected to obtain a considerable share of the future conversions in the service area that otherwise might have been obtained by oil. Gas will also capture a rapidly increasing portion of the fuel requirements of new homes being constructed in the service area.

"The additional 120 billion cubic feet of gas for industrial use will be sold almost wholly to customers who otherwise would use oil and coal. As used here, the term 'industrial' includes manufacturing and mining, but not transportation and electric power generation.

"In accordance with the suggestion of the Chairman, in our projections we have used the current ratio of oil and coal used by industry as a basis for apportioning the effect of sales of Trans-Canada gas between the two other major fuels. In 1956, the latest year for which complete data are available, industry in Ontario used those fuels in the ratio of 4 for coal to one for oil; in Quebec, on the other hand, industrial use of the two fuels was almost evenly divided in a 1 to 1 ratio.

"Of the 193 billion cubic feet of gas supplied by Trans-Canada, in 1962-63 in competition



with other fuels in Ontario and Quebec 123 billion cubic feet will be directly competitive with oil for residential, commercial and industrial uses, equivalent to 21 million barrels of oil, or about 58,000 barrels daily. Based on usage in 1956, kerosene, stove oil and light fuel oils would account for 13 million barrels, or 36,000 barrels daily, and heavy fuel oil for 8 million barrels, or 22,000 barrels daily.

"No attempt is made here to estimate the extent to which the division of markets between distillate fuel oil and gas might affect refining production in the Ontario or Quebec refining areas in 1963. Trends in the relative position of the oil refining in the two provinces have been the subject of considerable testimony before the Commission. However, the 13 million barrels of light oil fuels involved would be considerably less than the growth in consumption of such fuels in the two provinces from 18 million barrels in 1951 to 39 million barrels in 1956.

"The 8 million barrels of heavy fuel oil that would yield to gas are below the gain in demand for such oil for industrial and heating uses from 9 million barrels in 1951 to 18 million barrels in 1956. Total usage of heavy fuel oil for all purposes in the two provinces



amounted to 32 million barrels in 1956 and 35 million barrels in 1957.

"It may be of significance to the Commission that Ontario refineries in 1957 refined only 42 per cent of the heavy fuel oil consumed in the province although they met 65 per cent of the domestic gasoline demand. Further, Quebec and Ontario together imported more than 2,900,000 barrels of heavy fuel oil from foreign countries in 1957. These facts are significant to the subject under consideration. First, they recall the fact that oil products prices are not favourable to production of a high yield of heavy fuel oil from Canadian crude oil, at least east of Lake Superior, even when there is a potential market near the refineries. Secondly, they indicate that under present conditions the initial impact of any relative, or possibly temporary absolute decrease in demand for heavy fuel oil in Ontario and Quebec might be to reduce imports of heavy fuel oil. There could also be a decrease in the volume of heavy crude oil imported to refineries in the Montreal area. Whether or not any prospective 'displacement' of heavy fuel oil by gas in Ontario or Quebec would, under any foreseeable circumstances, be likely to reduce the demand for Canadian crude oil to a perceptible degree is a question that could be



readily determined.

"The estimated sale of the balance of 70 billion cubic feet of gas will be to industry in competition with coal, equivalent to approximately 2.7 million tons of that commodity. Of that amount, some 615,000 tons would be in the Province of Quebec, where total industrial coal consumption in 1957 was more than 2,700,000 tons. The remaining 2,085,000 tons would be displaced in Ontario, where all but a very minor part of the coal must be imported from the United States.

"As a further means of showing the competitive fuel situation in perspective, both historically and in the future, tables are attached which indicate that even with gas gaining rapidly, heating oil should still have room for a good rate of growth during the next five years. In this connection, it is noted that in the projections it has been assumed that all of the gas sold for residential and commercial uses would come out of sales which might otherwise have gone to oil. Actually, a substantial portion of the sales of gas for such uses will be to new homes and establishments, with much of the balance coming from conversions of existing coal users.

"In estimating total residential and commercial requirements for oil, gas and coal, we have used the same rates of population growth and per



capita usage of oil, coal and gas that prevailed in recent years. In estimating growth in total industrial fuel requirements, we have considered the report to the Royal Commission on Canada's economic prospects (Canadian Energy Prospects, page 306) which suggests a long term average rate of increase of 4.3 to 4.5 per cent a year. We have used a slightly lower rate of increase for the projection to 1962-63."

THE CHAIRMAN: Then the staff or the Commission, or both, will have the opportunity to ask for any enlightenment on the contents of the memorandum as they see fit. Thank you very much.

MR. McNEILL: The next item we have, sir, is the document which I referred to previously. It is a Comparison of the Alberta and Southern Stamford Research Institute market survey, our own figures, accumulated figures of our distribution companies. Perhaps, if that document has been filed, it may be marked as Exhibit No. M-22-5.

Mr. Coates proposes to read the context, a page and a small bit of context, and then if there are any questions our gas sales manager will be with us as well as the Commonwealth Services.

---EXHIBIT NO. M-22-5: Comparison of ERC-SRI
Market Estimates.

THE CHAIRMAN: Thank you. Mr. Coates, would you read this?



MR. COATES: Comparison of ERC-SRI
Market Estimates for Ontario and Quebec with
Forecasts by Four Large Franchised Distributors.

In Section II of the final report submitted by Alberta and Southern Gas Company Limited to the Royal Commission on Energy, the Economic Research Corporation Stamford Research Institute show under Table 1 their estimates of the annual firm gas requirements of distributors in the areas of Canada served by Trans-Canada Pipe Lines Limited. In Table 3 ERC-SRI gives estimates of gas sales classed as interruptible for the Canadian market served.

The ERC-SRI estimate of markets for Ontario and Quebec is the sum of the volumes in Table 1 for the areas 1 to 4 inclusive. The interruptible sales for Ontario and Quebec are not readily derived from Table 3 and so the volumes shown for the whole of Canada were assumed as Ontario and Quebec sales in order to arrive at the total ERC-SRI estimates for Ontario and Quebec.

The attached summary compares ERC-SRI market estimates as developed for Ontario and Quebec with the latest forecasts made by the four large franchised distributors in Ontario and Quebec, namely, Northern Ontario Natural Gas Company, Limited, Union Gas Company of Canada Limited, Consumers' Gas Company and Quebec Natural



Gas Corporation.

For each of the five contract years beginning with November 1st, 1958 to November 1st, 1959 year, the distributors' forecasts are shown individually and as a total opposite ERC-SRI estimates of annual firm plus interruptible sales.

It will be noted that in all years the distributors forecast larger requirements than ERC-SRI and the fifth year requirements exceed ERC-SRI estimates by approximately 51,000 Mmcf.

Also listed are these distributors' take or pay for volume commitments under contracts already in existence, which show the distributors have contracted to take or pay for in the fifth year only 11,000 Mmcf less the ERC-SRI estimates. If the fifth year take or pay for commitments of the other Ontario distributors -- Lakeland Natural Gas Limited, Kingston P.U.C., Augusta Natural Gas Limited -- are considered, this 11,000 difference is wiped out.

This summary also demonstrated the relationship between distributors' annual requirements as forecast by T.C.P.L. in submissions to the Royal Commission on Energy and the distributors' own forecasts. For the five contract years from 1958 to 1963 the distributors estimate a total requirement of approximately 752,000 Mmcf. Firm requirements anticipated in Trans-Canada's Royal



Commission submission total 706,000 Mmcf approximately.

It is evident that the major distributors expect greater sales in Ontario and Quebec than ERC-SRI estimate and in fact exceed Trans-Canada's market forecasts of growth in the first five years of development.

It is Trans-Canada's submission that ERC-SRI estimates of market requirements are unreasonably low and this position is supported by distributors' forecasts.

THE CHAIRMAN: Mr. Pattillo?

MR. PATTILLO: No questions.

THE CHAIRMAN: Mr. Frawley?

MR. FRAWLEY: I have no questions, thank you, Mr. Chairman.

THE CHAIRMAN: Thank you very much, Mr. Coates. Mr. McNeill?

MR. MCNEILL: The final item, sir, that I mentioned is a document which demonstrates the application of the suggested method or formula for ascertaining the quantity of gas available for export from Canada. I would suggest that document -- it has been filed -- may be marked M-22-6. It is a document which is almost entirely a tabulation.

---EXHIBIT NO. M-22-6: Document re application of suggested method for ascertaining amount of gas for export.

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The document reads as follows:

"Trans-Canada in its submission to the Royal Commission on Energy under the heading 'Re Regulation' suggested a method for determining the volumes of gas available for export from Canada. The calculations set out below demonstrate alternative applications of that method. Trans-Canada does not agree with the various methods or formulae submitted by Alberta and Southern Gas Company, Shell Oil Company or The British American Oil Company, particularly because none of those methods meets the requirement, in order to finance, of having presently proved reserves under contract.

(All volumes in trillions of cubic feet at
14.4 p.s.i.a.)

Established reserves of Alberta (a)	21.0	
Reserves required for Provincial use	11.0(b)	6.2(c)
Reserves beyond economic reach (a)	1.3	1.3
Reserves deferred because of oil production (a)	1.4	1.4
Reserves presently dedicated to existing export com- mitments (a)	6.0	6.0
Additional reserves present- ly required by Trans-Canada Pipe Lines to supply its anticipated Canadian Sales 1962-63 (d)	<u>1.9</u> <u>21.6</u>	<u>1.9</u> <u>16.8</u>
Available for Export	N11	4.2



- (a) Submission of Oil and Gas Conservation Board of Alberta to Royal Commission on Energy.
- (b) Testimony given by the Oil and Gas Conservation Board and Staff to the Royal Commission on Energy.
- (c) Market requirements of Alberta for the year 1963, as estimated by the Oil and Gas Conservation Board, times 30 years; thus providing full deliverability for a 20-year period.
- (d) Necessary to the financing of additional facilities which are required."

THE CHAIRMAN: I don't know whether counsel have any questions with respect to it. Mr. Pattillo?

MR. PATTILLO: No questions.

THE CHAIRMAN: Mr. Frawley?

MR. FRAWLEY: I have no questions.

THE CHAIRMAN: You agree with the reserves, Mr. Frawley?

MR. FRAWLEY: Yes. I am reminded that the Conservation Board said that they would prepare a document similar to this. They still propose to do that, sir.

THE CHAIRMAN: And to file it with the Commission, Mr. McKinnon?

MR. FRAWLEY: Yes. You may recall that in Toronto you asked Mr. McKinnon and Mr. McKinnon said he would. Of course, Mr. McKinnon hasn't been in his office in Calgary for some time, but he proposes, in compliance with that request of yours, to



file a document of this kind,

MR. McNEILL: That, sir, concludes Trans-Canada's submission.

THE CHAIRMAN: Thank you very much, Mr. Coates and Mr. McNeill and all your colleagues. I know that you have been before us several times; I think this is the third occasion. We appreciate very much your cooperation with the Commission. We realize your problems, and I know that you have devoted a great deal of time on behalf of the members of your organization and experts brought into the picture to assist us. We appreciate very much all you have done.

MR. COATES: Thank you, Mr. Chairman. I would like to say on behalf of my colleagues and my company that we appreciate the treatment we have received from you on the Commission and from the Commission staff. It has taken some time to do the job; we hope we have contributed something. If there is anything further, I would like to repeat that our staff is available to assist your staff or you or any of your colleagues at any time in connection with this matter.

THE CHAIRMAN: Thank you, sir.



Submission of
MID-CONTINENT PIPE LINES LIMITED

Appearances:

Mr. Len M. Wilton, Q.C.	- President
Mr. G. E. Beament, Q.C.	- Counsel
Mr. W. C. Gilman	- President, International Oil Pipelines Corp.
Mr. Philip C. Niles	- Director, International Oil Pipelines Corp.
Mr. Ian Matheson	- Executive, Dominion Securities Corporation Limited
Mr. Dudley F. Cates	- Partner, Kedder Peabody & Company

MR. PATTILLO: We are next going to hear from Mid-Continent Pipelines Limited, who are appearing before the Commission at the request of the Commission. They have filed a submission which I propose to have marked M-22-7. I would ask them to come forward.

---EXHIBIT NO. M-22-7: Submission of Mid-Continent Pipelines Limited.



MR. PATTILLO: Mr. Wilton, I assume that you will be leading the group and that you will introduce the group.

MR. WILSON: Mr. Beament will.

THE CHAIRMAN: Would you introduce your colleagues, Mr. Beament?

MR. BEAMENT: Thank you, Mr. Chairman. I appear on behalf of the Mid-Continent Pipelines Limited, in making this submission at the request of this Royal Commission. There are present with me today: Mr. Glen M. Wilton, who is the president of Mid-Continent Pipelines Limited; Mr. William C. Gilman, of New York City, who is the president of the associated United States company, International Oil Pipe Lines Corporation; Mr. Philip C. Niles, of New York City, who is a director of International Oil Pipe Lines Corporation; Mr. Dudley F. Cates, of New York City, a partner of the financial house of Kidder Peabody and Company; and Mr. Herbert M. Bruce of Toronto, who is a director of Mid-Continent Pipelines Limited. It is also expected that we will have present shortly - - I am afraid we did not anticipate being called quite as early this afternoon - - Mr. Ian Matheson, who is a senior executive in Montreal of Dominion Securities Corporation Limited.

THE CHAIRMAN: If you feel it is essential to your presentation, Mr. Beament, we can stand your presentation aside and go on with another.



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MR. BEAMENT: I think **not**, with your permission, Mr. Chairman. He will be along shortly.

Mid-Continent Pipelines Limited was incorporated in 1953 by special Act of the Parliament of Canada within the general ambit of the Federal Pipelines Act. Some years ago those primarily concerned with this company formed the concept of a large diameter oil pipe line **linking** the rich Alberta oil fields with the large and expanding market of the Great Lakes area of the United States. Over a year ago the company became increasingly convinced of the essential validity of this concept and it then embarked upon the formation of an international group to finance and set in train detailed related studies on the geological, engineering, economic, market and financial aspects of the proposal.

As an indication of the serious consideration which has been given to the matter, it is perhaps of some interest to the Commission to be informed of the identity of some of the persons and firms carrying out the studies: With respect to the geological aspects, De Golyer and MacNaghten of Dallas, Texas; on the Canadian economic aspects, Doctor John Davis, of Vancouver, whose work on the economics of the oil industry in Canada is I am sure well known to the members of this Commission; on the United States economic aspects, with particular



reference to the market in the Great Lakes area, Mr. Leonard M. Fanning, of Westport, Connecticut, who is editor of "World Petroleum Policies" and the author of various authoratative works in this field; on the engineering aspects of the matter, including detailed costs and economic feasibility studies, W.C. Gilman and Company of New York City, Consulting Engineers, in consultation with Mr. William G. Heltzell of Tulsa, Oklahoma, a pipe line engineering consultant of international repute.

The various studies which have been made confirmed the company in its belief in the essential validity of its original concept. By May of this year, these detailed studies had progressed to the point where the company felt justified in making an application to the Board of Transport Commissioners of Canada for leave to construct the Canadian section of the proposed pipe line. This application was filed with the Board on 5 May last, and a date for the Public Hearing of the application before the Board was fixed for 17 June. Compliance was made in due time with all the many and varied requirements of the Board as set out in its order for direction. At that time it was not considered that this Commission would wish to concern itself with a detailed project of this kind. But in early June this Commission informed my client of its interest in the project and invited it to appear and



make a submission. Before 17 June it was decided under all the circumstances then obtaining that an adjournment should be sought from the Board of Transport Commissioners of its Public Hearings fixed for that date. This was done, and that application now stands adjourned sine die, to be spoken to prior to the end of August, the intention being that the Public Hearing on the application before the Board would be brought on at an appropriate date shortly after this Commission had delivered its interim report on oil.

THE CHAIRMAN: May I get some clarification from you? The adjournment before the Board of Transport Commissioners on your application for a hearing did not emanate with this Commission?

MR. BEAMENT: Oh, no, Mr. Chairman. I would not wish to leave that impression. All the circumstances that obtained at that time, with particular reference to the fact that this Commission is sitting, made it increasingly difficult for any Department of Government to take any attitude on a matter of this kind. No, I would wish to disabuse the Commission of any impression of that kind, if I have left it.

Now, Mr. Chairman, my client and indeed all concerned with this important international project are very conscious of their responsibility to assist this Royal Commission in



any way possible in carrying out its vitally important public duties, and in this appearance and the submission that will be made it is fully conscious of that responsibility. On the other hand, I am sure, sir, that you and your fellow Commissioners will appreciate that, in view of the pending application before the Board of Transport Commissioners, which may now not come on before some time this coming Autumn, that a full public disclosure at this time of the contents of the detailed studies to which I have already referred might well jeopardize the legitimate commercial interests of my client. It is with this thought in mind, and with your permission, that certain of these detailed studies have been and will be submitted for the confidential use of the members of the Commission and that the written submission filed for Public presentation at this time has necessarily been expressed in somewhat general terms, omitting detailed information relating to the project which has been assembled at substantial expense of time, energy and money over the past year or more.

I trust that in making these observations in opening I am not out of order and that you, sir, and your fellow Commissioners and my learned friend, Mr. Pattillo, will bear them in mind in the conduct of any examination which may follow the presentation of this submission.



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I sincerely hope that nothing which I have said may be construed as departing in any way from the real desire of those whom I represent to assist this Commission in any way within their power, while at the same time protecting their own understandable and legitimate commercial interests.

With your permission, sir, I will now ask Mr. Glen M. Wilton, the president of Mid-Continent Pipelines Limited, to read the written submission of that company.

THE CHAIRMAN: Thank you, Mr. Beament.

MR. WILTON: Mid-Continent Pipelines Limited was incorporated under the Federal Pipelines Act in 1953 with power to construct pipelines for the transportation of petroleum anywhere in Canada.

International Oil Pipelines Corporation was incorporated in Delaware in 1957 by a group of individuals closely associated with Mid-Continent Pipelines Limited. International and those associated with it for the past twelve months have made feasibility studies, both economic and engineering for a large diameter crude oil pipeline to carry crude oil as a common carrier from the vicinity of Edmonton, Alberta to the vicinity of Joliet, Illinois to supply a part of the anticipated future increase in demand for crude in the Great Lakes area of the United States. On May 5, 1958 Mid-



Continent filed an application with The Board of Transport Commissioners of Canada for leave to construct the pipe line. Hearings were originally scheduled for June 17, 1958 but have now been postponed to a date to be determined in August, 1958. Upon gaining the necessary approvals of the appropriate governmental agencies in Canada, by agreement entered into between Mid-Continent and International, International will become a wholly owned subsidiary of Mid-Continent.

GENERAL DESCRIPTION OF PROPOSED LINE:

Engineering studies by the two companies show that a large diameter crude oil pipeline from Edmonton to the Chicago area can lay down crude at Chicago at a price completely competitive with present crudes of comparable quality from other continental sources while operating at only a moderate part of ultimate capacity. As the full capacity of the line is reached pipe line tariffs can be substantially reduced.

The proposed pipeline is expected to cost \$198,000,000, and will have an initial capacity of 150,000 barrels per day, which is expected to increase by the fifth year of operation to 300,000 barrels per day. Total first year deliveries at 100% load factor would amount to close to 55 million barrels, and total fifth-year deliveries close to 110 million barrels.



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The pipeline will have a diameter of 30 inches, will be approximately 1,500 long (600 miles in Canada and 900 miles in the United States), and when augmented to carry 300,000 barrels per day, will have 83,000 horsepower combined pumping capacity in eight pumping stations, and 2,000,000 barrels storage tank capacity in each of two terminals located at the ends of the line. Provisions have been made for heavy-duty steel pipe fully protected with coating, wrapping and cathodic protection. The estimates also provide for a micro-wave radio communications system, automotive equipment, aircraft tools and working equipment, and office equipment.

From a point just east of Edmonton, the proposed pipeline will extend in a southeasterly direction for approximately 602 miles through mostly open prairie in Alberta and Saskatchewan to a point east of Northgate, Saskatchewan on the Canada-United States border. The American section of the pipeline will continue approximately 898 miles through prairies in North Dakota farmlands interspersed with lakes in Minnesota, rolling hills interspersed with farmlands and forests in Wisconsin, flat farmlands in Northern Illinois, and will terminate in Will County, Illinois about 20 miles southwest of Chicago.

This route passes close to Camrose,



Alberta, Regina, and Moosejaw, Saskatchewan, Minot and Fargo, North Dakota, Minneapolis and St. Paul, Minnesota, LaCrosse, Wisconsin, and Rockford and Joliet, Illinois. It passes through or close to oil fields in Alberta and Saskatchewan and about 60 miles east of Williston Basin in North Dakota.

FUTURE DEMAND FOR CRUDE OIL IN THE U.S.:

Studies made on behalf of the two companies conclude that over the ten years from 1957 to 1967 the demand for petroleum products in the United States will increase at an annual average rate ranging from a minimum of 4% to a possible 5% rate resulting in a total increase over the period of from 48% to 62%. This compares with the average annual increase in domestic demand of 4.9% from 1947 to 1957. Total domestic demand for petroleum products in 1957 was 8,797,000 barrels per day. The projected increases for the next ten years are in the range from 4,220,000 to 5,440,000 barrels per day by 1967. In 1957 domestic production of crude oil was 7,175,000 barrels per day which was augmented by natural gas liquids of 865,000 barrels per day and imports of crude and products of 1,545,000 barrels per day to satisfy the domestic demand of 8,797,000 barrels per day plus exports of 562,000 barrels per day and stock increase of 167,000 barrels per day.

For the first time in fifteen years the



proven reserves in the U.S. at the end of 1957 showed a decrease from the previous year. Average annual findings of new crude in the U.S. decreased to 2,887 million barrels for the five year period ended Dec. 31, 1957 from 3,341 million barrels for the previous five year period ended Dec. 31, 1952. In order to support the projected increase in demand over the next ten years from domestic sources alone the average annual findings of new crude would have to be in the range of from 3,850 million barrels in the earlier years to 6,820 million barrels in the later years.

The cost of findings, developing and lifting crude in the U.S. has steadily increased over the years as drilling results have declined.

These studies lead to the conclusion that imports of crude or products into the U.S. will of necessity have to increase from the 1,545,000 barrels per day figure for 1957 to a level nearer 3,300,000 barrels per day by 1967. The magnitude of such projected imports would equal the total demand for petroleum products in the U.S. in 1939 and would compare with the total combined production of Venezuela and Canada in 1957 of 3,279,000 barrels per day.

The deficits of domestic production to demand will be made up by imports from various outside sources which can logistically satisfy the



demand in the various consuming areas in the U.S. on broadly the most economical basis. Thus as long as Canadian crude can compete price-wise with U.S. crude in certain areas there will be an expanding potential market in those areas of the U.S. which are geographically closest to Canadian production.

MARKET IN THE GREAT LAKES AREA:

Consumption of petroleum products in the five state area adjacent to the Great Lakes extending from Wisconsin to Ohio increased from 928,000 barrels per day in 1947 to 1,582,000 barrels per day in 1957, an annual average increase of 5.3% per year which compares with an annual average for the country as a whole of 4.9% for the same period. The total demand for petroleum products in this area in 1957 was 18% of the total demand for the country. Projected demand for this area for the next ten years indicates an annual increase of 4.25% or a total for the period of 51.6%. This increase to 1967 would be about 820,000 barrels per day over the 1957 demand. With the demand increase for the country as a whole putting pressures on domestic production, imports on a competitive price basis must make up a substantial portion of the demand increase in the Great Lakes area.



Established refineries in this area at January 1, 1958 had a daily crude capacity of 1,060,000 barrels. Crude oil charged to these refineries arrived by pipe line from the Gulf Coast, Mid-Continent, Rocky Mountain, Canadian and local producing fields. In 1956 Texas accounted for 45 per cent of the supply with Oklahoma at 16.5 per cent, Illinois at 11.1 per cent, Utah and Wyoming at 9.4 per cent and Kansas at 9.1 per cent.

The remaining demand in the area not met by local refineries was made up largely from deliveries by product pipe lines originating in the Mid-Continent, Gulf Coast, Kansas City, and St. Louis areas.

Present and Projected Crude Oil Demand and Supply in Canada: Extensive briefs on this subject have already been submitted to the Royal Commission from many of the most competent sources of information in this country. Experts have been employed by Mid-Continent and International to review these submissions as well as to develop conclusions independently. All of these studies lead to the one conclusion that the reserve potential in Canada will not only take care of Canada's future demands, but is of such magnitude as to allow a future exportable surplus well in excess of the present pipe line capacity of pipelines currently exporting crude oil from Canada as well as the projected full capacity of



the proposed Mid-Continent line of 300,000 barrels per day. In fact it is our opinion that the intensive development of large export markets for Canadian crude is only next in importance to the further development of the Canadian domestic market. It is Mid-Continent's prime purpose to develop an export market in the Great Lakes area of the U.S. in co-operation with the refiners and marketeres in that area and with the Canadian crude oil producers.

The present economic recession in Canada and the United States has resulted in a down turn in the long upward demand trend for petroleum products. Our forecasts are that the upward trend will commence again in the near future. However, the slackening in demand together with a present over abundance of crude available from both domestic and foreign sources created pressures in the U.S. to restrain the rapidly mounting imports of foreign oil and give a reasonable level of protection to the domestic crude producer. This has resulted in a series of voluntary import restrictions in the U.S. the mechanics of which are administered by Captain Matthew V. Carson, Jr. of the United States Department of the Interior.

Our studies lead us to the conclusion that this is a temporary situation which will be reversed or modified long before the end of the ten



year period on which we have based our projections. It is possible that the change could come with startling rapidity scarcely giving time to develop the means of transporting larger imports into the U.S. by pipeline from Canada.

Conclusions: The increased demand for petroleum products in the U.S. over the next ten years will not be supportable by U.S. domestic production alone. Present evidence indicates that imports of crude oil and products in 1967 will of necessity be of the magnitude of 3,300,000 barrels per day as compared to 1,545,000 barrels per day in 1957. The demand for petroleum products in the Great Lakes area will be of the general magnitude of 2,400,000 barrels per day in 1967, an increase of 820,000 barrels per day over 1957.

Imports of crude oil and products from foreign sources will enter the various consuming markets in the U.S. from those sources which can best compete not only price-wise but from areas which can assure a long future of safe and uninterrupted supply.

Economics only as applicable to a large diameter crude oil pipe line from Edmonton to the vicinity of Chicago as planned by Mid-Continent are such that low cost transportation could be provided for Canadian crude to be delivered at Chicago at a laid-down price completely competitive with crudes



from other continental sources.

Beyond 1967 it is entirely possible that the pipe line proposed by Mid-Continent would have to be duplicated to supply a still more rapidly expanding demand for imported crude.

THE CHAIRMAN: Thank you very much.

MR. BEAMENT: Mr. Chairman, before completing this submission there are perhaps two additional points on which I should comment. While my clients and its associates have had numerous confidential conversations with prospective customers in the United States, Great Lakes area, they do not wish to leave the impression with the Commission that it has at this time negotiated firm contracts for throughput or deficiency, or that it has obtained from such customers written letters or anything in such regard.

In view of the current political climate in the United States with respect to the import of oil, all such conversations have been carried out in confidence. I am, however, authorized to say generally that such conversations have produced a most interested and encouraging response which indicates that as soon as an order for leave to construct the Canadian section, conditional upon ultimate proof of financial responsibility, has been obtained from the Board of Transport Commissioners, and the United States restrictions on imports of Canadian oil have been relaxed, negotiations of the necessary throughput and deficiency agreements can



be proceeded with, with a genuine hope of success.

In this connection it is perhaps fitting that I should respectfully request that in view of the present political situation in the United States, the confidence of the persons with whom such conversations have been held be honored by not pressing my client or its associates to identify the persons or corporations with whom such conversations have or have not been held up to the present time.

The final point upon which I should like to touch concerns the petition of Mid-Continent Pipelines Limited to Parliament at its present session for an act to amend its special act of incorporation. The bill in question has been introduced in the Senate and was formally presented in that House earlier today. The principal amendment sought concerns the powers of the company to construct and operate pipelines. As you are no doubt aware, Mr. Chairman, special acts of incorporation of pipeline companies by and large follow a general pattern of wording developed since the enactment of the Federal Pipelines Act in 1949. From inclusive 1951 session of Parliament, at the instance of the then opposition, the empowering section of all these special acts of incorporation have included a proviso in the following sentence: "Provided that all pipelines for the transmission and transportation of gas and



oil shall be located entirely within Canada." It is understood that the purpose of this proviso was to ensure that an essentially west to east pipeline joining two points in Canada would be constructed entirely within Canada and not by a looping route involving most of the line being constructed and operated in the United States.

Be that as it may, the construction of this proviso came up for consideration by the Board of Transport Commissioners last year on the application of Alaska Yukon Pipelines Limited to construct the Canadian section of an international oil line between a point in the Yukon and a point in Alaska. The Alaska section was constructed by an Alaska Company which was a wholly-owned subsidiary of the Canadian applicant company. The Board of Transport Commissioners by its judgment dated the 13th of June, 1957 held as a matter of law that such proviso under such circumstances, precluded the Board from granting the leave sought. Alaska Yukon Pipelines Limited did not appeal this decision on a point of law, but it did at the last session of Parliament petition Parliament for an amending act deleting such proviso from its empowering section, and such Act was passed at the last session of Parliament and now appears in the 1957 and 1958 Statutes of Canada as Chapter 37.

Similarly, Mid-Continent Pipelines Limited



since it proposes to exercise unified control in Canada over the entire pipeline by having the United States section constructed and operated by a United States Company, International Oil Pipelines Corporation as it is a wholly-owned subsidiary, finds itself in a similar position to Alaska Yukon in the application to the Board to which I have referred. It is in order to obviate any such difficulty as occurred on that application that Mid-Continent Pipelines has now petitioned Parliament for an amending act. It is also seeking minor technical amendments to its special act of incorporation with which I do not feel that this Commission need burden itself.

Mr. Chairman, that completes the submission of my client and within the limitations to which I have taken the opportunity of referring we shall be pleased to be of any further assistance to the Commission within our power.

THE CHAIRMAN: Thank you, Mr. Beament.
Mr. Pattillo?

MR. PATTILLO: Mr. Beament, I will ask you the questions and you may decide who is to answer them.

MR. BEAMENT: All right.

MR. PATTILLO: And if I ask any questions that you think are improper, you may ask that the Chairman rule on them. First of all, what



refineries are presently in the Chicago area?

MR. BEAMENT: Mr. Niles will endeavour to answer that.

MR. NILES: From memory this is, I am sorry I won't be able to give you the exact refinery capacities: Standard Oil Company of Indiana have a very large refinery there. Sinclair Oil Company; Cities Service Oil Company; Power Oil Company, and the Texas Corporation and between them I believe the total of the five refineries is in the neighbourhood of a half million barrels a day.

MR. PATTILLO: When you said in your submission at the bottom of page 5 and top of page 6: "established refineries in this area at January 1, 1958 had a daily crude capacity of 1,060,000 barrels". What refinery are you including?

MR. NILES: This includes the whole southern Great Lakes area which extends from Chicago to Buffalo, and Mid-Continent Pipeline through their American subsidiary would stop at Chicago, but would intend to connect with presently existing crude oil pipelines which extend from Chicago to Toledo, Cleveland, and Buffalo.

MR. PATTILLO: Well then, at the top of the page, the next page:

"Crude oil charged to these refineries arrived by pipeline from the Gulf Coast, Mid-Continent,



Rocky Mountain, Canadian and local producing fields".

What Canadian oil found its way into any of these refineries?

MR. NILES: There is a small amount I believe dropped off in Central Michigan. I don't know the name of the company. It is near, I believe near Bay City, Michigan. It is a very, very small amount. Possibly the reference to Canadian oil could have been omitted because of its insignificance in that area.

MR. PATTILLO: Now, of these refineries in these areas of which you are speaking with this capacity, how many of them are utilizing their own crude? When I say "their own crude" I mean crude belonging to them or to an affiliated company.

MR. NILES: That is a question I can't answer. Most of these companies -- well, I believe Standard Oil of Indiana company-wide only supplies to all of its refineries about 47 per cent of its own crude. I don't know how that is divided between its various refineries in various parts of the country. That information is not available publicly, but there is a great co-mingling of various companies crude into various refineries.

MR. PATTILLO: How many of these refineries that would be in this potential market have financial interests in pipelines leading to their refineries?



MR. NILES: I would say from my best remembrance, there is only one that has not got a financial interest in a pipeline leading to one or more of its refineries.

MR. PATTILLO: Now, can you tell me whether any Venezuelan crude is being laid down in the area of this potential market at the present time either physically or by way of trade?



MR. NILES: I can't tell you that. As of today, I do know there are many trades going on where those refiners who have no foreign crude will be taking, possibly taking Venezuelan crude in the Gulf Coast for delivery to those refineries, and just specifically what ones, I don't know. This is somewhat similar to Sun Oil which, I believe, is delivering Venezuelan crude to Sarnia.

MR. PATTILLO: Do you say, as I understand it from Mr. Beament, that at the present time your two companies have not entered into any throughput agreements or deficiency agreements with any refiners?

MR. NILES: That is correct, yes.

MR. PATTILLO: Do you agree with me that a private enterprise cannot build a pipeline without either one or the other?

MR. NILES: Yes.

MR. PATTILLO: Would you explain to the Commission, Mr. Niles, how, without a throughput agreement or a deficiency agreement, this company can prove economic feasibility?

MR. WILTON: I think Mr. Gilman might perhaps be the more appropriate person to answer that question.

MR. GILMAN: Well, in preparing our report of the economic feasibility, we assumed that a minimum of 150,000 barrels a day of oil



would be put through the line, and that putting that amount of oil through the day through the line would be the result of contracts entered into and necessary throughput or deficiency agreements. On the basis of 150,000 barrels a day deliverability of the line, we believe it is economically feasible.

MR. PATTILLO: In other words, if you had a deficiency agreement or a throughput agreement for that quantity the line would be an economic feasibility.

MR. GILMAN: Yes, sir.

MR. PATTILLO: If you haven't got it, it isn't; is that it?

MR. GILMAN: That is correct.

MR. PATTILLO: Something like the poor chap who got sick in February -- we have the oil there, the markets down here, and any damn fool can build a pipeline.

MR. GILMAN: I don't think it is quite as simple as that.

MR. PATTILLO: Has any application been made to the FPC corresponding to the application to the Transport Board for permission to import over this proposed line?

MR. GILMAN: No, there is no requirement of the United States for any company proposing to build --

MR. PATTILLO: I am sorry, not the Federal



Power Commission, the ICC.

MR. GILMAN: No, there is no requirement for a company which proposes to transport crude oil into the United States to make any application to the Interstate Commerce Commission. After a line is built the company, in so far as its rates and service are concerned, is subject to regulation by the Interstate Commerce Commission.

MR. PATTILLO: As long as one complies with the quota and duty provisions, one can bring the oil in; is that it?

MR. GILMAN: Yes.

MR. PATTILLO: And there is no place in the United States similar to the Transport Board where you must prove economic feasibility before you can build a line?

MR. GILMAN: That is correct.

MR. PATTILLO: It is only when the line is built and the oil flowing that you are subject to regulation?

MR. GILMAN: Yes.

MR. PATTILLO: Has this company entered into any contracts, provisional or otherwise, with any producer in Alberta or Saskatchewan?

MR. WILTON: No, it hasn't, Mr. Pattillo.

MR. PATTILLO: What is the scheme? Is the scheme to be that the company will operate as a common carrier a facility or will it own the oil



that it is transporting?

MR. WILTON: It is a common carrier.

MR. PATTILLO: Now, I suppose before you could finance this line to the United States you would have to go to the S.E.C. to get approval? What has your scheme been on the financing?

MR. WILTON: Mr. Gilman might speak.

MR. GILMAN: I, at one time, was with the Securities Exchange Commission. The only financing that would take place in the United States would be the sale of bonds, and any common stock would be sold in Canada, and the bonds might be sold by what is known as private arrangement with institutions and it is not necessary to make any application to the Securities Exchange Commission.

MR. PATTILLO: Of the Mid-Continent Pipelines Limited, how many directors are there?

MR. WILTON: Five.

MR. PATTILLO: How many of them are Canadian?

MR. WILTON: All of them, at the moment. There is a provision for the election of two Americans, shortly. I might say that under the Companies Act these provisions apply to this particular company, and the requirement of law is that there will be a majority of directors resident in Canada.

MR. PATTILLO: Well, Mr. Wilton, we have them in our office; we have the same set-up.



Now, International Pipelines, how many of the directors in that are Canadian?

MR. GILMAN: All the directors at the present time of International Oil Pipelines are Americans -- excuse me, I should change that. Mr. Niles is a Canadian. He happens to be resident in New York at the moment, and I inadvertently classed him as an American. He is not.

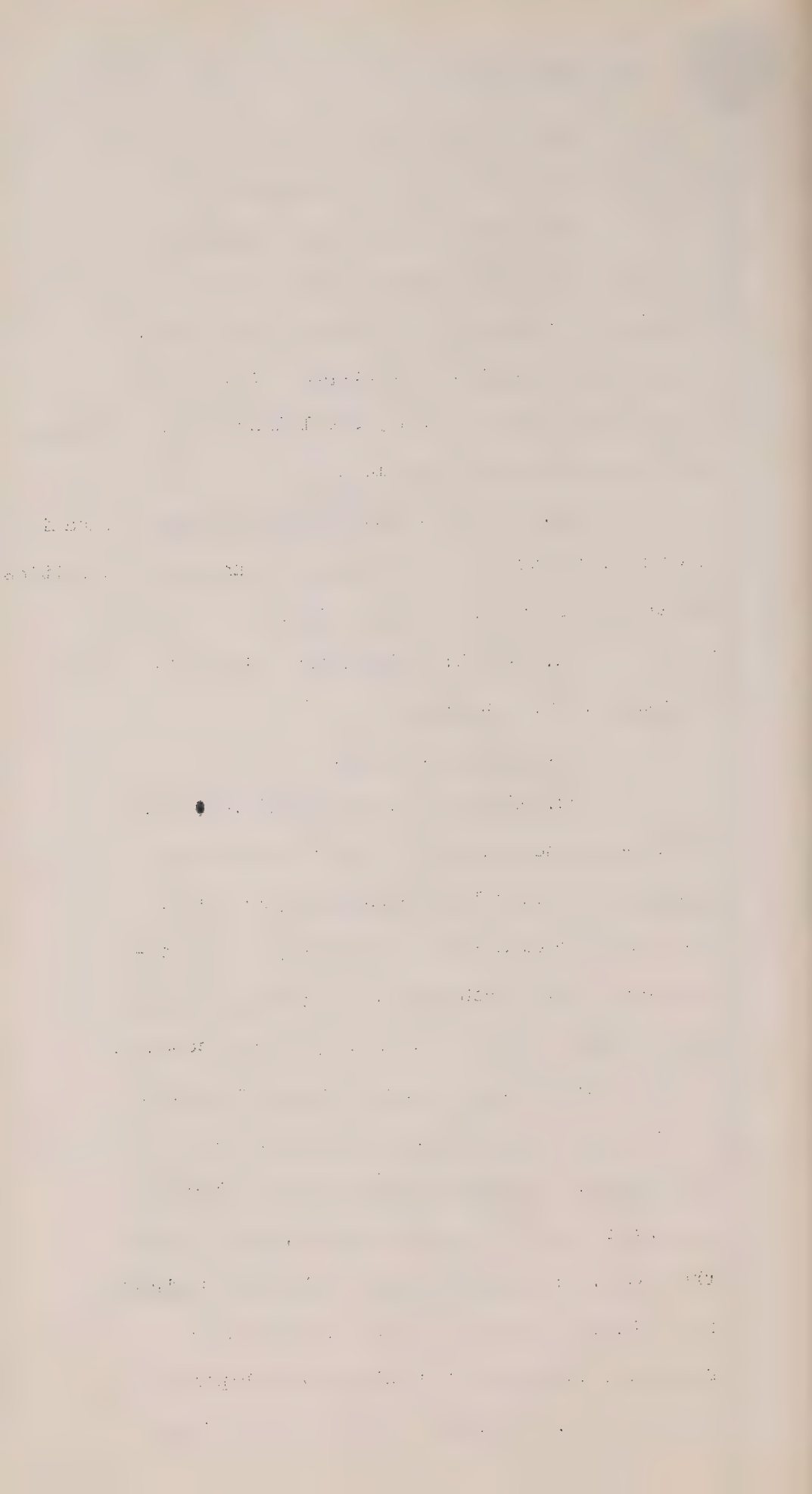
MR. PATTILLO: Have either of those companies issued any shares, any debentures or any other securities to the public at the present time?

MR. WILTON: May I deal with Mid-Continent, Mr. Pattillo?

MR. PATTILLO: Yes.

MR. WILTON: There are 200,000 shares of Mid-Continent issued out of an authorized capital of five million shares, no par value, and I have here a list of some 34 persons constituting the shareholders, the persons who have an interest, direct or indirect, in the company. I have included the heading "indirect" because of the need to qualify with the securities regulation. Of the 34 shareholders, 31 reside in Canada, and they represent 99.45 per cent of the stock. I would be glad to give the Chairman in confidence a list of those as well as a financial statement of International Pipelines.

MR. PATTILLO: That would be fine.





Those are all the questions.

THE CHAIRMAN: Mr. Frawley?

MR. FRAWLEY: Thank you, Mr. Chairman.

In view of the fact that this proposed pipeline would be carrying our oil to Chicago I might be expected to say something, but I only want to say that the questions Mr. Pattillo directed to the witness covered completely any questions I had in mind, and I have no further questions.

THE CHAIRMAN: Thank you very much, Mr. Beament, your associates and clients for coming today, and we appreciate very much your filing this submission with us and giving us the information which you have.

Gentlemen, we will have a ten-minute break before proceeding, and then we will proceed with Western Decalta Petroleum Limited, submission filed by certain of the independent oil companies in Alberta.

---A short recess.



Submission of

CANADIAN DEVONIAN PETROLEUMS LIMITED
CANADIAN HOMESTEAD OILS LIMITED
CONSOLIDATED EAST CREST OIL COMPANY LIMITED
CONSOLIDATED MIC MAC OILS LTD.
HOME OIL COMPANY LIMITED
MERRILL PETROLEUMS LIMITED
OKALTA OILS, LIMITED
WESTBURNE OIL COMPANY LTD.
WESTERN DECALTA PETROLEUM LIMITED

APPEARANCES:

Mr. Charles S. Lee

THE CHAIRMAN: The Commission will now
resume its hearings. Mr. Pattillo?

MR. PATTILLO: Mr. Chairman, we have
the submission that has been filed, which is
Exhibit M-22-3.

---EXHIBIT NO. M-22-3: Submission of Canadian Devonian
Petroleum Limited, Canadian
Homestead Oils Limited,
Consolidated East Crest Oil
Company Limited, Consolidated
Mic Mac Oils Ltd., Home
Oil Company Limited, Merrill
Petroleum Limited, Okalta
Oils, Limited, Westburne Oil
Company Ltd., Western Decalta
Petroleum Limited.

MR. PATTILLO: Mr. Lee is here, and
I assume that he is going to develop that submission.

THE CHAIRMAN: Mr. Lee.

MR. LEE: On behalf of the group whom
I represent and myself personally, I wish to thank
the Commission for their courtesy in requesting my



presence here today. The submission which I am about to present has been prepared in an attempt to answer the questions raised in the letter I received from the Secretary of the Commission on 18th June, 1958. I hope that its contents will be of assistance to the Commission. The submission is supported by the following companies: Canadian Devonian Petroleums Limited, Canadian Homestead Oils Limited, Consolidated East Crest Oil Company Limited, Consolidated Mic Mac Oils Ltd., Home Oil Company Limited, Merrill Petroleums Limited, Okalta Oils, Limited, Westburne Oil Company Ltd., Western Decalta Petroleum Limited.

THE CHAIRMAN: Are all these companies Canadian-controlled companies?

MR. LEE: Substantially, yes.

1. The oil industry has become one of the largest industries in Canada within the last ten years.
2. The size of the job performed and yet to be done is immense.
3. The contribution by the independent oil industry has been substantial

(a) They have paid \$158,000,000 for Crown oil rights in Alberta.

(b) They have drilled 50 per cent of the wildcat wells.

4. The Canadian independent oil producing companies are in the best position to represent the



- essentially Canadian point of view of the oil producing industry in Western Canada.
5. Canadian participation in the initial stages of the new oil industry in 1947 was at a serious disadvantage due to the absence of local technical and financial experience in the oil business.
 6. In the initial enthusiasm, there was a surge of equity financing of new independent oil companies in 1947 to 1952. This is the origin of the majority of the existing independents.
 7. Since then it has become increasingly difficult to raise equity finance; fewer and fewer independent companies are being registered; more and more are being merged.
 8. Smaller independent groups of oil investors, or oil companies, rely upon adequate incentives for individuals to invest in the oil business. These incentives are insufficient at the present time.
 9. Only sizeable independent oil companies are in a position to:
(a) Attract financing
(b) Attract qualified management
(c) Obtain adequate exposure to oil finding.
 10. The activities of Canadian independent oil companies are highly sensitive to any reduction in allowables; many have restricted means of financing except through debt secured by oil



production.

11. Land, enlarged geological and geophysical knowledge, new techniques, trained Canadian personnel are now available for a thriving independent industry.
12. The continued generation and well-being of Canadian independent oil companies will depend upon:-
(a) Incentive tax legislation
(b) Attracting equity financing and individual risk money
(c) Greater facilities for long term financing
(d) An assured and growing market for as much crude oil as can be properly produced.

Introduction: The independent Canadian oil producing company may be defined as one which is wholly or very substantially dependent for its revenues and development program upon properties held in Western Canada. This is in contrast to a major international company (whether integrated or not) which derives the greater part of its revenues from the development of properties with great resources from many parts of the world. There is a rapidly growing third important category. A number of independent companies from the U.S.A. are setting up organizations in Canada, as oil becomes more and more expensive to find in the U.S.A. A purist will have little difficulty in finding borderline cases which fall part way between these extremes, but the



great majority of companies fall clearly within one or other of these three categories.

This review describes in some detail the range of activities of the independent producing companies; their genesis, merger and decease; their special investment appeal to the public; their special opportunity for an individual Canadian operator or group of individuals of initiative; their very particular fiscal problems in relation to the proration and market demand; their taxation problems; their contribution to the industry and their relationship with the major international oil companies operating in Western Canada.

Problems of the Independent Industry:

Now that ten years have passed since the discovery of Leduc it is possible to examine the statistical results of this period and to examine the functioning of the independent petroleum industry.

Authorities agree that foreign capital has played a dominant and highly necessary role in the development of the Canadian oil industry. Foreign capital investment in the oil industry alone contributed \$1.3 billion for direct investment from 1946 to 1956. As a result it has been estimated that 80.1 per cent of the industry is controlled by foreign capital. It is of significance that in 1947 the international oil companies were firmly established world-wide and able to move into Alberta



rapidly. This has had a far reaching effect upon the efforts of Canadian independents in their own country. With their vast financial backing already established the international oil companies were able to take full advantage of the land tenure position in Western Canada. In the light of all their experience they were quick to appreciate the possibilities of a rich oil province in Western Canada and obtained great tracts of land under favourable exploration conditions. The results of their keen foresight are evident. By contrast, in the discovery days in the U.S.A., there were no major companies, nor was the majority of the land owned by Government. Companies which are now majors were themselves in their infancy.

Against this background it is not surprising that Canadians, who for the most part were quite unfamiliar with oil booms, unfamiliar with oil land values, lacking technical management and unable to raise the large amounts of risk money for exploration, played a secondary role in the development over these past ten years.

Now, however, Canadians are becoming more and more knowledgeable about their own oil industry, and a good reservoir of technically trained men is becoming available. Companies can now be formed under good local management provided adequate incentives are assured, and it is our belief that



an aggressive Canadian independent industry **should** be encouraged to grow, fostered by circumstances which are controllable within its country in the same way that its counterpart is fostered in the U.S.A. by greater facilities for long term financing, incentive tax legislation, quotas and tariffs.

How far the industry has been concentrated in a few hands is demonstrated by the following percentages of ownership. We have estimated that eight major companies own:-

- 55% of the gas reserves in Alberta as of December 31, 1957
- 65% of the oil reserves in Alberta as of December 31, 1957
- 58% of the oil production in Western Canada in 1957
- 56% of the oil wells in Alberta as of December 31, 1957
- 45% of the land under lease or reservation in Western Canada as of December 31, 1957
- 40% of the oil pipelines in Canada as of December 31, 1957
- 65% of the gathering lines in Canada as of December 31, 1957
- 79% of the refineries in Canada as of December 31, 1957

Historical: Drilling for oil and gas in Alberta began seriously in 1914. Much of the early work was done by companies in Turner Valley and they obtained their finance from the public by the issue of shares to small speculative investors.

Many of these scattered interests were



consolidated for the most part by one major company in the years 1920 to 1930.

Out of the discovery of substantial oil reserves at Turner Valley in 1936, numerous small companies again sprung up to develop small leases. Public financing on a company basis was not too successful and individual wells were financed by the sale of "net royalty interests". This, in effect, entitled the holder of a 1% net royalty interest to 1% of the net proceeds of production after payment of the gross royalties and operating expenses. In the event that sufficient royalties could not be sold to individual holders, it was not unusual for one of the major companies to purchase those unsold with the stipulation that if oil and gas were discovered that a crude and natural gas contract would be entered into with that company. The promoter and developer of the well usually retained as his profit, a gross royalty in the well together with the operating rights which entitled him to a fixed fee for operating the well. This method of financing was employed quite successfully until 1942 at which time new income tax legislation (introduced as a result of a successful appeal by B & B Royalties Limited in the Court of Exchequer) had the effect of taxing income accruing to royalty holders both in the hands of the trustee and the hands of the royalty holders. This change in



legislation prohibited the raising of money to drill wells on a royalty basis with the result that most of the drilling during the early and middle 1940's was by major oil companies and a few of the stronger independents. This was one instance of taxation working to the disadvantage of the independent.

During these early years exploration costs, particularly drilling, which did not result in production, could not be charged against income for tax purposes. The producer could not sustain many of these losses without ceasing exploration.

In 1943, the Federal Government formed a company known as Wartime Oils Limited to expedite development of Canadian oil sites by financing drilling on proved lands believed capable of marginal production. Wartime Oils Limited advanced the full drilling cost to operators who bore only the cost of testing the well and equipping it for production. The liability of the operator in respect of the advances received was limited to their repayment from production together with a small royalty to Wartime Oils Limited based on the amount of funds advanced. Without this assistance from the Federal Government it is unlikely that the independent operators could have borrowed or raised the money necessary to drill even proven leases. During this period of time, several of the major companies did engage in drilling activities but primarily they were using marketing profits and also, due to high income taxes in effect



at the time, were being financed directly by the Federal Government as they were permitted to deduct their drilling costs from taxes otherwise payable.

Since the discovery of Leduc in 1947 the financing of the independent oil companies may be roughly divided into four phases:

(a) Promotion of a large number of small companies and the selling of equity in these companies - 1947 to 1952.

(b) The realization of the possibilities of the production loan technique referred to in Appendix 1 - 1949 onwards.

(c) The sale of convertible debentures, which permitted the investor first, to recover his investment without taxation; second, to earn some interest on his investment; and third, to have the option to acquire equity in the company at a reasonable price if the company was successful - 1952 to 1954 onwards.

(d) The sale of preferred stock and first mortgage bonds to institutions, such as insurance companies, pension funds and banks in the United States - 1950 to 1955; and from 1955 some minor sales have been made in Canada.

The ease with which equity financing has been done reached its peak in 1950 to 1952. Since that time it has become increasingly difficult to finance independent companies through the sale of equity



stock, although some established independents refinanced in 1957.

A drying up of risk capital has arisen from regulation of the Stock Exchanges, limitations on the use of credit in the purchase of securities and the high taxes on personal incomes. It has also made equity financing difficult and costly.

In reviewing 33 companies, which are most active in the oil business, a wide variety of policies can be detected. Clearly there is no prescribed road to success. However, for the sake of clarity some attempt can be made to classify the results of the effort of various types of companies:-

(a) There are those who acquired blocks of land of sufficient size and have had the good fortune to have oil found on them strictly as a matter of luck. The value of the original equity put into these companies has multiplied several times to the great benefit of the shareholders, and as a result aggressive independents became established.

(b) There are those who have concentrated upon the building of production revenue out of which they expect to continue an increasing amount of exploration in the future.

(c) There are those, who had established sources of production revenue from development in Turner Valley and had formed a nucleus of sound



technical management, and as a result of this have made substantial discoveries based on good geological thinking.

(d) There are those who formed companies, installed good management and proceeded immediately into the exploration field, some of which have had outstanding success.

(e) Finally, there are those who used their capital funds for exploration, without any particular direction or knowledge.

In all these cases there have been successes and in all there have been failures. The failures predominate in the last category.

Following the discovery of Leduc in 1947 the public was again attracted to the purchase of shares in the Western Canadian oil business. In Canada, in contrast to the United States, there is little or no tax advantage to an individual who becomes involved in the drilling of oil wells. Because of these barriers, there has not been the great number of independent operators such as came into existence in the United States during a similar period. Most of the present Canadian independent industry is made up of independent companies which did equity financing mainly in 1950 to 1952.



Thereafter more independent companies participated in the acquisition of proven acreage and more of them turned to the banks to borrow the funds necessary for these acquisitions. Production loans were made on the security of the wells drilled or acquired and repayments were made out of the proceeds of production from the wells on these properties. By 1956-1957 the ability of the banks to lend was heavily curtailed and this had an immediate restrictive influence on the activities of the independent companies who were buying proven production. Since that time, the "credit climate" has improved slightly.

There is a great incentive to convert the short term production loan to a long term mortgage or debenture. The ability to do this provides a great stimulus to the growing independent. The inability to do it, either through market conditions or lack of size, leaves the company in a vulnerable position; if, coincidentally, allowables are cut, the independent is indeed in a serious position because the company guarantees the bank loans. There are instances in Calgary where not only drastic reductions in personnel have had to be made in order to maintain bank payments but all exploration in these companies has ceased.

Number of Independent Oil Companies: The total number of independent oil companies listed in the "Financial Post Survey of Oils", of all shades of activity is 365. Of these, 269 are insignificant;



63 are small but significant; 33 are relatively large, active and aggressive.

The total number of independent companies who have come into being and subsequently ceased to function is about 2,200; of this about 11 per cent have ceased to function because they have merged.

Trinidad is another oil country where the independent industry has passed through various phases. It could well represent, on a small scale, a future pattern for Canada. In that country where production in 1920 was 1,000,000 barrels per annum and has stabilized at about 21,000,000 barrels from 1940 onwards, 157 independent companies were formed of which ten were active in 1950 and 5 were paying dividends. Of these 5 only 3 now remain independent. The two largest independent companies were absorbed; the first, United British Oilfields into Shell Oil in the 1920's and the second, Trinidad Leaseholds was sold to Texaco for about \$176 million in 1956. British Petroleum, Texaco and Shell are now grouped together to form Trinidad Northern Areas.

The question arises whether in fact Western Canada is following this pattern. An examination of the records of the Alberta Registrar



of Companies shows that the number of companies formed in Alberta reached a peak in 1952 and has since shown a steady decline (see attached graph).

May I just refer to that tabulation for a moment? I had some additional figures given me this morning by James Richardson & Sons, which I think are quite significant. In this curve the Registrar of Companies included not only completely separate companies which have been incorporated or registered, but also a large number of subsidiaries which the major companies incorporated or registered for the purpose of acquiring wide tracts of land under the current provincial regulations.

I was this morning able to get the actual number of oil companies aside from that particular group, and the curve follows the curve that you see on this diagram surprisingly closely except of course there was a constant subtraction from the curve that I have shown due to the number of companies that have been formed by the major companies to take out this land.

The other significant thing which they were able to produce to me, and I am very happy to have, include the annual statistics, and that is the increase in number of deaths, if I might call it that, births and against that deaths, and the deaths in 1952 were eleven companies; in 1953, 41; in 1954, 55; in 1955, 58; and 1956,



for some reason, dropped suddenly to 19; in 1957 there were 63 and probably the most significant figure of all in the last six months it has risen to 57 again. That is in half a year, so that there is an evident increment in this last year over and above the norm in the previous three years; evident increment in the number of companies that have gone to the wall.

THE CHAIRMAN: Do you consider in those statistics marriage as death?

MR. LEE: No, marriages do not count as a death.

THE CHAIRMAN: How did you deal with your merged companies?

MR. LEE: I have a separate list of them. In a sense, of course, marriage is a matter of death, in a sense.

Now, to continue with the main text, Mr. Chairman.

Registrations from outside the Province have shown an upswing in the past year due probably to increasing participation by independent oil companies from the United States. During 1957 ten U.S. independent oil companies started business in Western Canada. In the first four months of 1958, the same number of companies, namely ten, started business in Western Canada.

Our concern is that the local Canadian



independent company may be supplanted unless it is given the same advantages as its counterpart in the United States.

The Importance of Size for an Independent Company: The techniques of assessment, evaluation, exploration, engineering, geology, financing and general development of oil properties demand highly qualified, trained and experienced personnel. There must be certain incentives to draw suitable men away from the relatively assured employment of a major company, and they will only be attracted by a vigorous and growing independent industry.

During 1947 to 1952 the industry was both vigorous and growing and size was not too important. Now, however, size has become important. To attract substantial finance, not only is a record of success of management for oil finding or a record of successful oil purchases necessary but now size and backing are essential. Financing from insurance companies or pension funds or backing from large financial institutions comes more easily when the applicant is searching for several million dollars backed by adequate production. Small companies of less than, say, 1000 barrels of oil per day find it exceedingly difficult if not impossible to raise funds and have been forced to merge in some cases.



Effect of Allowables and Markets: Since 1947 the independent industry has invested more than \$158 million in proven, semi-proven and other parcels of Crown reserve land, which have been put up for auction by the Provincial Government in Alberta alone. All these acquisitions have been made on the assumption of certain rates of return on the total acquisition and development costs of these properties. As far as is possible, estimates are made of the future allowables appropriate to the fields in which the purchases are made. Frequently the independent borrows money to develop the lands and in the early days he was permitted to borrow not only for the development, but also for the purchase. Any downward change in any of the allowables, from whatever cause, decreases the rate of return and the yearly revenue derived from the properties. In recent months these allowables have suffered a setback for two different reasons. In January 1958 the Oil and Gas Conservation Board in Alberta adjusted the economic allowables downward and general market conditions have reduced percentage produced of the M.P.R.'s on other fields. This has affected independent companies by reducing the cash throw-off normally available for investment in exploratory ventures and has added to the difficulties of financing long term loans on production which require



adequate assurance of future marketability of such production. Inevitably, convertible debentures, notes and even common stock will be more difficult to sell to institutions or the public at large.

The Need for Incentive Taxation: Several submissions have been made to public bodies with regard to taxation in relation to the oil industry. In spite of this, it is felt that this review would be incomplete without some further reference to the subject.

Authorities agree that the greater part of foreign investment in the Canadian oil industry has come from the United States. It is also generally agreed that U.S. tax laws allow a wider participation in the industry and offer more incentives and concessions for the investment of risk capital which has contributed greatly to the growth of the independent oil industry in that country. Some of the factors in U. S. tax law which contribute to this situation are:

- (1) Individuals and corporations whose principal business is not "production, refining or marketing of petroleum" are allowed to deduct their expenditures in searching for oil in computing taxable income. This has had the effect of attracting risk money to the industry especially during periods of high taxation.



- (2) Operators in the United States are granted a more generous method of computing depletion in calculating taxable income with the alternative of using "cost depletion" if it is more advantageous to do so.
- (3) The U.S. operator is allowed to recover most of his costs against income in the United States whereas in Canada, except in certain limited circumstances, the cost of abandoned properties is not allowed as a deduction.

One criticism levelled at our Canadian system of taxation stems from the fact that it places the Canadian operator at a disadvantage vis-a-vis United States competitors, including the major international oil companies based in the United States, in Canadian oilfields. Mr. J. Grant Glassco formerly of Clarkson, Gordon & Co., an expert in this field, has very ably summarized the position in a submission to the Gordon Commission and we include his comments as an appendix. His opinions are borne out by "The President's Materials Policy Commission" under the chairmanship of William S. Paley, which read in part as follows:

"On balance considering all aspects of the income taxes as they apply to the mineral industries it appears that the oil and gas industries receive more generous



treatment in the United States than under Canadian law."

In addition to the great advantages that U.S. producers have over their counterparts in the matter of depletion, we would like to point out also the advantages that any marketing and/or refining company operating in Canada has over the Canadian independent producer. Such marketing or refining company is permitted to write off against its refining or marketing profits all exploration and drilling costs with the result that it may be able to enjoy immediately a $33 \frac{1}{3}$ per cent depletion allowance on its oil and gas production.

Under similar circumstances but with no refining or marketing profits a Canadian independent oil producer attempting to conduct an exploration program is not allowed to take the advantage of depletion allowance until he has written off his exploration and/or development costs. This may not occur until 100 per cent of the oil has been produced.

Contribution of the Independents:

While the main objectives of any producer, whether an independent or a major are fundamentally the same, their financial problems and their avenues of approach are radically different. The major companies borrow money more cheaply, and, because of



revenues derived from production elsewhere, they can afford a widespread and costly exploration program aimed at the major discovery.

The fact that the major companies can borrow more cheaply can be found in Appendix 1 and the schedules attached to it.

Whereas the major international integrated oil company must always have due regard for the susceptibilities and policies of other countries where the company has large amounts of capital invested and large reserves, the Canadian independent is only concerned with the affairs of Canada. The Canadian independent has, therefore, the responsibility to present the case from the national point of view. His contribution in this respect is valuable.

The independents in the U.S.A. have made significant contributions to the industry.

	<u>Majors</u>	<u>Independents</u>
Gross crude oil production from 1952 to 1956	62%	38%
Wells drilled from 1952 to 1956	22%	78%
Wildcat drilling during 1952 and 1953	19%	81%

No figures are available to us for the number of discoveries made by independents versus majors. The fact that the independents drilled more than three-quarters of all the wildcat wells



would indicate that they probably discovered the greater proportion of new fields.

The contribution of the independent in Canada is as follows:

	<u>Major</u>	<u>Independents</u>
Contributed to Alberta Provincial Crown Sales	\$229,325,209	\$158,183,045
Alberta gross crude production - 1956	76%	24%
Alberta percentage of oil wells - 1956	65%	35%
Wildcat drilling - 1953 to 1956 inclusive	47.3%	52.7%
Oilfields discovered (Alberta) 1930 to 1957	60	46
Gas fields discovered (Alberta)	65	58

We have selected three of the major companies, which:

- (a) In 1956 produced over 70 million barrels of oil or over 49% of light crude produced in Alberta from wells listed in their own names -- this does not count wells in which they own an interest but in which their name does not appear: and,
- (b) In 1957 produced over 60 million barrels of oil or 44 per cent of light crude produced in Alberta.



We list below the exploratory effort of these three companies during the same period.

<u>Year</u> <u>Year</u>	<u>Exploratory Wells</u> <u>Drilled by 3 majors</u>	<u>Total Exploratory</u> <u>Wells by Industry</u>	<u>%</u> <u>Total</u>
1953	74	477	15.5
1954	65	428	15.1
1955	74	412	17.4
1956	77	478	16.2
1957	89	573	15.3

The independent industry provides an avenue for investment by the Canadian public. It is attractive to them because it gives a great leverage prospect and proportionate share in a substantial discovery than would be available by investment in major companies. Of the 211 companies traded on Canadian stock exchanges last year only nine of these were major integrated oil companies or their subsidiaries.

The independent industry also attracts individual investors as partners from the U.S.A. Participation by these investors with major companies is unusual if not actually non-existent. Independent companies because of their size and the personal contact permit such participation on a fairly heavy scale. The independent industry is therefore able to attract finance from outside sources which would not otherwise be available to the industry.

In Canada the competitive presence of the



independents not only stimulates activity in areas of the industry where the major companies would otherwise be left alone to conduct affairs, but their presence also permits representation to public bodies, such as this Commission, of a different point of view from the internationally integrated company.

The Outlook for the Independent Producer:

Evidence before this Commission has shown that:

- (a) 7.4 to 10 billion dollars will be required to finance the oil business between now and 1968.
- (b) 1.3 to 1.5 million barrels of oil can be produced daily by 1963.
- (c) 27 to 50 billion barrels of reserves will ultimately be discovered in Western Canada.

The figures we have presented in this statement show that the independents have taken part in nearly 40 per cent of the investment in Government properties, approximately 25 per cent in production and more than 50 per cent in the number of wildcat wells. The independents have made a major contribution to the industry in Canada. If they are to continue their activities on the same scale the independents must be in a position to attract large amounts of new capital. However, there is a possibility that a combination of adverse tax laws; difficulties of financing due to



low rate of return; difficulties of obtaining long term finance from Canadian institutions; commercial preference by refining companies to take their own crude from overseas; may lead to the subordination of the independent in the same way that it has done in such places as Trinidad.

We have endeavoured to suggest means by which this situation can be avoided -- tax adjustments, both corporate and personal; an increased share of the crude oil market in Montreal; no further changes in the method of proration to market demand; and greater facilities for long term financing by Canadian insurance houses, pension funds and banks.

Backed by such considerations the independent Canadian oil companies have probably a greater chance than ever to take their place in the industry. Land is coming available. Geological and geophysical knowledge has become enlarged and better documented as a result of ever-widening development and exploration. Techniques unknown ten years ago in the industry are now commonplace. Canadian personnel trained in all branches of the oil business are becoming available. It is our feeling that the greater the number of efficient operating units the better the chance of generating new techniques and economies of operation and finding and developing more Canadian oil.



In addition to that, sir, there are some appendices. They are there for the record. If you would care for me to read them, I could.

THE CHAIRMAN: I don't think you need do so, Mr. Lee. We have access to Mr. Glassco's report to the Gordon Commission, and so on.

MR. LEE: The only novel thing is possibly our method of evaluation. I have tried to put out a resumé and I have tried to tie our terminology down to something that is already well recognized in the mining industry.

If you do not wish me to read it, that concludes the submission.

THE CHAIRMAN: Thank you very much, Mr. Lee. Could I get one point clarified? On page 14 opposite your chart, your chart purports to show the graph of the companies incorporated in Alberta and the foreign companies registered in Alberta. As to the foreign companies registered in Alberta, does that include incorporated other than in Alberta? In other words, if you were taking this as a non-Canadian as against a Canadian graph you might be very misled if that is so.

MR. FRAWLEY: In the old days everything that was not incorporated in the province was classed as foreign.

THE CHAIRMAN: Do you think there has



been any change in that classification, sir?

MR. FRAWLEY: There are still some foreigners, like Venezuela.

MR. LEE: I think, to be specific, these figures here include such companies as would normally be operated in Saskatchewan or other provinces; they form a foreign company for this purpose.

THE CHAIRMAN: Mr. Pattillo?

MR. PATTILLO: Mr. Chairman, I am not proposing to ask Mr. Lee any questions. On the other hand, I do want to congratulate him on the material that he has put before the Commission, which has been done at our request, and I want it understood that because I am not asking him any questions it doesn't mean I don't think the work is deserving of commendation.

MR. LEE: Mr. Pattillo, the relief is mine.

THE CHAIRMAN: Mr. Frawley?

MR. FRAWLEY: Mr. Chairman, thank you, I do not think I need even to explain why I am not going to cross-examine.

MR. COMMISSIONER LADNER: Mr. Lee, I want to say what an excellent contribution this is to our studies, as far as I am concerned. I am particularly interested in taxation. You have given us the disadvantages which the independent suffers under the Canadian law as compared with an



American individual or corporation who comes into Canada to engage in the same kind of exploration and conduct of business. Now, it looks so overwhelmingly convincing, the injustice of the thing, that I am loathe to think that there is not another side of the coin. What is the position with the Government?

MR. LEE: I can tell you something about it. The only one I am particularly familiar with is cost depletion. Our problem there has been this, that we have had some difficulty in explaining to government officials the difference between the acquisition of oil rights as against the acquisition of real estate. I have quoted land tenure, which is a misnomer, but it is commonplace in the industry. When we have made representation to have cost depletion, government officials have always explained to us that they see very little difference between the lease of an oil right which is rendered completely defunct by a dry hole and the lease of a surface right for the purpose of putting up a manufacturing unit. I think it is fairly obvious to everybody that by the total destruction of a workshop or a manufacturing entity of that kind you can still retain the real estate upon which that entity was put down. On the other hand, when we have drilled a dry hole on a piece of land which



may have cost us anything up to several million dollars, we have so far not been able to persuade them that that is a cost against our income; it is a total loss as far as we are concerned. That is the only point I am familiar with, sir.

MR. COMMISSIONER LADNER: Is it considered to be a capital loss?

MR. LEE: It is a capital loss, yes, as far as the right, the oil right, is concerned.

MR. PATTILLO: Mr. Commissioner, might I ask a question arising out of your question?

Isn't there something to be said for the Government's point of view in the light of the development that has occurred in Alberta? As long as you have a good many of the companies not engaging in exploration but merely coming in to bid on proven or semi-proven areas, if the tax relief you are seeking were permitted, wouldn't you have a great increase in the type of companies that were doing just that rather than getting out into the exploration field?

MR. LEE: I think you would have to guard against that, and that is actually contained in our brief, a statement to that effect. That is actually contained in this memorandum.

MR. PATTILLO: That, in fact, has been one of the great troubles with the present situation in Alberta, hasn't it, that there have been



a lot of companies who have come in without contributing at all to exploration and simply bid on a dollar basis as to what they are going to pay for what they think is proven area, what it is going to cost them to develop it and how long the pay-out is going to be?

MR. LEE: I think the word I would take exception to is the word "trouble". I don't think it has been trouble; I think it has stimulated a good deal of activity as far as we are concerned. We had the statement of Mr. Nielson. I hesitate to support any statement to the effect that the number of parcels to be offered of Crown szle should be reduced. I speak from my company's point of view particularly. That is the way we have been able to reestablish the reserves which we have been producing. We go into the Crown sales. On many occasions we get something; in fact, I would say that once in four occasions we get a substantial part of what we paid for it, and those one in four occasions are extremely important to an independent company, because that is the way he has some assurance of reestablishing his oil reserves. Unless an oil company reestablishes its oil reserves, then ultimately it must go out of business.

MR. COMMISSIONER HOWLAND: Mr. Chairman, I have just one or two questions of Mr. Lee. I



would like to associate myself, Mr. Lee, with Mr. Ladner in the commendation of the submission.

On page 7 you refer to independent companies and you say 269 are insignificant. Does this mean in terms of the dollars invested or their exploration activity?

MR. LEE: All three, sir, I would say. They were small promotions which were stimulated in the year 1952 for the greater part. They were probably instigated by people who knew very little about the oil businesses, with a desire to pick up a few pieces of land. Because they knew very little of what they were doing, they went out of business. I think that is possibly being a little charitable in some cases.

MR. COMMISSIONER HOWLAND: You referred to Mr. Nielson, and I was impressed by his story of the independent in this sense, that he took a special section of the market and some how carried the product to it. Now, this invokes in my mind now the question as to the role of the independent in regard to marketing. I gather your story here is a story of excellent contribution to new development, discovery. My understanding of the problem today is that the oil industry, in terms of development of production of oil, is faced with a very large marketing problem. Have you any thoughts on the role of the independent in that



regard?

MR. LEE: Well, sir, I can only speak for Home Oil and the other associates. I think we have been fairly active in the past or endeavoured to find a market for our fuel oil.

MR. COMMISSIONER HOWLAND: We have heard that story, and I am sure we do not want it reiterated.

MR. LEE: Well, that would be my reply, that in March of last year, 1957, we became very conscious about difficulties, in spite of the fact that at that time we were producing possibly the maximum we were producing in Alberta, we became very conscious of it, and on that basis we made our plans for the necessary investigation to find out what was really the truth of our marketing position.

THE CHAIRMAN: Don't tell me your people were responsible for appointing this Commission.

MR. LEE: No, sir.

THE CHAIRMAN: I would take back all the nice things we said.

MR. PATTILLO: I think that Mr. Lee, having told us he knows what the truth is, should at least tell the Commission privately.

MR. LEE: Mr. Pattillo, I said that we could find out the truth.

MR. COMMISSIONER HOWLAND: I have just one question, to bring out what is in your mind. You are necessarily associating good or bad with size, are you?

MR. LEE: Do you mean size of junior companies or major companies versus independents?

MR. COMMISSIONER HOWLAND: There is a tendency in some thinking - - in my own sometimes at loose moments - - to talk about size as though it is bad. There is a tendency to think this way sometimes. You are not identifying your thought here that if there is consultation to some extent that is not necessarily an evil, or is it, in your judgment?

MR. LEE: May I express myself this way? I feel that the generation of a very



large number of small independents will ultimately give rise, as it has done in western Alberta, in western Canada, to a number of responsible medium sized companies who are active. Admittedly the smaller ones, a large proportion of them, maybe 90 per cent, will go to the wall or be merged, but in so doing they will generate a number of aggressive and active independents. It is a matter historically, certainly in the United States, that a very high proportion of the independent thinking, particularly in relation to new techniques, has come from the independent side of the industry. I could rattle off a number of names, such as Haliburton and Otis. There have been innumerable inventions, and we have cases of that sort in Canada. A new technique is being developed by a small company for completion of wells. It is out of that seed bed of small independent companies that, to my way of thinking, the strength of the independent industry as a whole grows. I do not know if that answers your question.

MR. COMMISSIONER HOWLAND: I think that is exactly what I wanted to hear from you. I am not trying to write down the role. I am just trying to develop it. But I would be a little more interested in the foreseeable role of the independent in the marketing. I am referring to Neilson as one. You may know of 1,000 cases where the independent has taken his product in a special way to the market.



Or is it inevitable that the independent must rely on the larger integrated company for his market outlets? You have a wide knowledge of affairs here.

MR. LEE: I would say this, Mr. Howland, In the great majority of cases we should have to rely on the major company to find the outlets for the standard products. Mr. Glen Nielson had a very particular set of circumstances in those cases. It may transpire that there will be another special product which will require a special market which can only be developed by a special independent, if you see what I mean. I think that on the whole one has to recognize that we should be dependent upon the larger operators, as it stands at the present time, to further our interests in the market.

MR. COMMISSIONER HOWLAND: Thank you, Mr. Lee.

THE CHAIRMAN: Mr. Lee, I do not want to gild the lily at all. I will just formally thank you very much for a very informative brief. We appreciate very much the time and effort that you and all the companies that are associated with you in this brief spent on this. We realize that it was late in the day when the idea of having such a brief submitted to the Commission was conceived, and therefore you deserve all the more credit and we thank you very much.

MR. LEE: It has been most gracious



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of you to speak like that, Mr. Chairman.

THE CHAIRMAN: Thank you, sir.



Submission of

THE QUEBEC GASOLINE RETAILERS AND
GARAGE OPERATORS' ASSOCIATION INC.

THE CHAIRMAN: Is Mr. Ostiguy in the room?

MR. RIVEST: He is not here yet. He will not be long.

THE CHAIRMAN: Are you associated with him?

MR. RIVEST: Yes, sir.

THE CHAIRMAN: May I address my remarks to you? May I have your name?

MR. RIVEST: Gilles Rivest.

THE CHAIRMAN: Mr. Rivest, you have, through the Quebec Gasoline Retailers and Garage Operators' Association Inc., submitted a brief to the Secretary with a request that we hear it read and have it submitted to the Commission today. I have gone over it. It really is a matter dealing with prices and matters concerning the retail distribution of petroleum products, with which, in all fairness, our Commission has no direct responsibility. However, I would like to accept the brief. I would like to have it marked as an Exhibit and put into the public records of this Commission, and, immediately that is done, it becomes public property, but I see no point really in our having it read out, if you would agree with that.



MR. RIVEST: I thank you very much.

THE CHAIRMAN: Is that quite satisfactory?

MR. RIVEST: Yes, sir.

THE CHAIRMAN: Fine. Then we will mark it.

--- EXHIBIT NO. M-22-9: Submission of the
Quebec Gasoline Retailers
and Garage Operators'
Association Inc.

Preamble: The Gasoline Retailers
and Garage Operators are the domestic outlets
through which a major industry in the field of
natural resources in Canada distributes its products
and sells them at the consumer level. In this
capacity the garage owners and gasoline retailers
constitute an important segment of the petroleum
industry.

It would appear therefore that the
problems of those engaged in the direct retail
sale of petroleum products fall within the terms
of reference of the Royal Commission on Economic
Growth and Natural Resources of Canada.

For this reason, we, who represent
the Quebec Gasoline Retailers and Garage Operators'
Association Inc. grouping a large proportion of
retailers in Eastern Canada, feel that, in this
brief, we are contributing to the welfare of the



petroleum industry by drawing the attention of the Royal Commission to the numerous problems besetting our members.

As representatives of the gasoline retailers and garage operators of the Province of Quebec, we would like to point out the difficulties with which our members have to contend and to suggest remedies at the federal, provincial and municipal level in order to solve these problems.

These problems in the main stem from the relationship between retailers who are lessees of oil companies and independent operators with these same oil companies. To wit:

Price Wars: A great number of our members are lessees of oil companies while others are "independents". This has created a number of problems in the competition among which is the Price War.

These have started in Ontario but have been waged in rural areas of Quebec to invade eventually the large urban centres such as Montreal, Quebec and Trois-Rivieres, Sherbrooke, Granby, Drummondville, St-Hyacinthe, Joliette, St.-Jerome, etc., etc., where gasoline is being sold at 34, and even 31 cents, per gallon at retail. The average Retailer's cost price for gasoline in Montreal is 40.6 cents.

Oil Companies have admitted --- and such statements have been reproduced in the press ---



that in many cases they have subsidized their lessees in order to fight the lessees of other companies and the independents.

The principle of "discounts" to customers has always been denounced by the Association which believes that only superiority of service rather than artificial means should attract the customer.

It is debatable whether the independents or company lessees are the more guilty of this practice. But it is drawn to the attention of the Royal Commission that if companies were enjoined to desist from such practices as subventions to their lessees, the danger of price wars would probably be lessened if not altogether eliminated.

The Quebec Gasoline Retailers & Garage Operators' Association has no fixed idea on the method to accomplish such a desired end. But it would suggest to the Commission that a federal study of price structures in the retail sales of petroleum products be made, avoiding both the implication of price fixing or restraint of trade and the over-liberalization of price policies.

It might be found for instance that the legality of such subsidies may be doubtful in view of the fact that oil companies obtain certain relief from taxation at the federal level. This may raise the question of the propriety of such



companies using their profits to engage in competition which, in our opinion, is not ethical. Moreover, we know that certain oil companies - through their marketing departments - have given birth to unfair practices in allowing discriminating cost prices to some retailers in a specific area, with no regard to the sale volumes.

LEASE OF STATIONS: While oil companies have established strong and useful programmes of training and instruction for their lessees in the retail field, still over 40% of garage owners and gasoline retailers have failed in Quebec in the past year.

This does not alter the fact, however, that the ruin of many a lessee has been caused, we believe, by the desire of oil companies to establish prestige and product identification by the construction of many service stations and the distribution of their products by independent retailers which either were not necessary for the needs of the locality or were competing unduly with the lessees of the same company in the same neighbourhood.

A United Press news dispatch on a report published by the Canadian Bureau of Statistics, on June 25, shows an increase of almost 12 per cent in business failures for 1957 over the 1956 figures.

This official report states



that filling stations topped the list of bankrupt businesses in the Province of Quebec, in 1957.

LEASES TO NUMEROUS OPERATORS: In spite of the training and directives and courses given by oil companies and referred to earlier, it remains in the opinion of the Association that too many outlets have been set up.

We feel, gentlemen, that these practices - too many outlets, price wars, etc., - have a common ground in the intention of oil companies to establish their name and prestige at all costs, regardless of the dangers which confront the economic stability of the oil retail industry.

Knowing that we, in Canada, enjoy "the greatest known oil reserve on the face of the earth", according to Canada Year Book, we are sure that the Royal Commission on Economic Growth and Natural Resources of Canada will see that the best interest of the Canadian people be served in preparing a report that will protect the industry as well as the retailer, and consumer.

CONCLUSION: May we state in closing that our problems have already been submitted to the Provincial Government in December 1957, when a 300 member delegation of the Association was received at Quebec by the Premier and his ministers. We were told that the Quebec government was sympathetic to our difficulties, but that remedies, in the whole, fell within the jurisdiction of the



Federal and Municipal authorities. We clearly understand that the control of the petroleum industry is not the responsibility of the provincial government, and we therefore have felt necessary to present to the Royal Commission on Economic Growth and Natural Resources of Canada the problems confronting our Association and the welfare of our members in the Province of Quebec.

THE CHAIRMAN: Thank you very much, Mr. Rivest.

MR. RIVEST: Thank you very much, sir.

THE CHAIRMAN: Will you explain to Mr. Ostiguy?

MR. RIVEST: Yes, sir.

THE CHAIRMAN: Thank you.

Now, gentlemen, I think we have come to the termination of our hearings, of the present round of enquiry that we started out on last February. I wish to take this opportunity of thanking everyone in the City of Montreal and the Province of Quebec who have contributed to making our visit to this City and Province pleasant and, shall I say, as carefree as possible. However, I think at this time I should be a little more embracing geographically and I would like to take the opportunity of thanking everyone and all the companies, organizations and groups of people who have appeared



before the Commission throughout our hearings across from Montreal to Victoria. We have found no hesitation whatsoever on the part of any one in freely giving us information which they felt would be of assistance to us, and if we asked for it there was never any question of it being forthcoming.

I want to thank Counsel, the staff and the advisors, and Mr. MacKinnon and others of the Alberta Gas and Conservation Board and the other Boards of Saskatchewan and Ontario and elsewhere who have been of considerable assistance to us, as well as the permanent Government officials in Ottawa and in the various capitals of the provinces. I would be very remiss if I did not say a word of appreciation on behalf of the Commission to the reportorial staff, who have tried to keep up with the exuberant verbosity that we have experienced on each day of the Commission's work; I think they have done a first class job and I know they have worked hard and very long hours. I wish also to express our appreciation to the authorities who own and control this building for the use of this very good Council Chamber for our meeting place.

There is one thing that, before we adjourn, I should speak on. We had contemplated, as a result of exchanges of cables with the Venezuelan Government, that they might appear before the Commission tomorrow and make their representations



to the Commission. I am advised that they do not propose to do that at this time. Of course, they reserve the right and privilege which is theirs to make representations on the diplomatic level to the proper Government authorities in due course, should they see fit to do so. However, I would like to say that the Commission is quite prepared to receive any submission in writing which the Venezuelan Government may desire to send to it.

Now, I think the time has come to adjourn. Our next hearings are somewhat in the future, and we will adjourn sine die. As you know, I publicly stated on behalf of the Commission previously, as far back as February, that it was our intention, to the best of our ability, as soon as we felt that we had obtained as much of the relevant evidence as it is possible for a Commission of this nature to obtain, to give an interim or preliminary report to the Government with respect to certain aspects of the gas and oil industry, and it is our intention to do so, but I do not wish to be misunderstood and I would not wish any one to think that my saying that would mean that we had a report in our hip pockets and that it was going to be made the day after tomorrow. I can definitely tell you that such is not the case. But until we are in a position to make such a



report and have made such a report it is not the Commission's intention to have any further hearings. They will be postponed until after that time.

MR. FRAWLEY: Mr. Chairmar, if I am not interrupting you, might I just have the indulgence of the Commission to make a short statement at the conclusion of your public hearings into oil and gas. I am aware of the very special role that I was permitted to play, and because of that I want to thank you on my own behalf as well as on behalf of the Province of Alberta. It was considerate and perhaps understanding of the Commission to recognize how important to Alberta were the matters that the Commission was directed to examine and in so recognizing to accord to me the right as Counsel for Alberta to question witnesses, while restricting all other questioning to Commission Counsel. But, even so, the very particular role that I was permitted to play and the courtesies and the consideration which I have received from you personally, sir, and from each one of your fellow Commissioners has indeed been, if I may borrow a phrase, away above and beyond the call of duty. Particularly I want to thank Mr. Pattillo and Mr. Patterson on the one hand and Mr. Parkinson and Major Lafrance on the other, and certainly not excluding Mrs. Morgan and Mrs. Skelton. I am not unaware of the help I have had



from time to time from your advisors; it is just that I have of necessity been in closer contact with the gentlemen I have named. I am perfectly sure that Mr. Manning would wish me to thank the Commission as I have done, and that is why I have associated him with what I am saying. I am glad to say that Mr. McKinnon and Mr. Stabback are with me on this last day of this phase of the Commission's work. Mr. McKinnon wants me to say that if his organization, which perhaps with pardonable pride I may call a very fine organization, can be of any help to you, right down to the day you file your report, it is only necessary to request it. Once again thank you, Mr. Chairman for everything you have done for me.

THE CHAIRMAN: Thank you very much indeed, Mr. Frawley. I can only say that home in the meeting place would not have been the same without you.

Gentlemen, we shall now adjourn the hearings of this Commission sine die.

--- Whereupon the hearings adjourned sine die.

